DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1991

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

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[1] Resigned Committee May 16, 1990.
[2] Elected to Committee, May 24, 1990.

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1991

WEDNESDAY, MARCH 14, 1990.

DEPARTMENT OF DEFENSE SPARE PARTS AND INVENTORY MANAGEMENT

WITNESSES

HON. COLIN McMILLAN, ASSISTANT SECRETARY OF DEFENSE FOR PRODUCTION AND LOGISTICS

MAJOR GENERAL CHARLES M. MURRAY, DEPUTY CHIEF OF STAFF FOR SUPPLY, MAINTENANCE AND TRANSPORTATION, UNITED STATES ARMY MATERIAL COMMAND, DEPARTMENT OF THE ARMY

MAJOR GENERAL EDWARD R. BRACKEN, DIRECTOR FOR LOGISTICS PLANS AND PROGRAMS, OFFICE OF THE DEPUTY CHIEF OF STAFF FOR LOGISTICS AND ENGINEERING, DEPARTMENT OF THE AIR FORCE

REAR ADMIRAL JAMES P. DAVIDSON, UNITED STATES NAVY, EXECUTIVE DIRECTOR OF SUPPLY OPERATIONS, DEFENSE LOGISTICS AGENCY

REAR ADMIRAL ROBERT M. MOORE, UNITED STATES NAVY, ASSISTANT COMMANDER FOR INVENTORY AND SYSTEMS INTEGRITY, NAVAL SUPPLY SYSTEMS COMMAND

JAMES H. REAY, DIRECTOR FOR SUPPLY MANAGEMENT POLICIES, OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE FOR PRODUCTION AND LOGISTICS

INTRODUCTION

Mr. MURTHA. The Committee will come to order.

The Department of Defense claims to have a major program for reducing unnecessary inventory growth including: cataloging actions to eliminate duplicate items; revised policies on retention and requirements determination; reductions in lead times, actions to terminate excess on order material; transition to weapons systems management; and ADP modernization.

However, the reality belies the words. From 1988 to 1989, the categories which comprise inapplicable assets increased by $400 million to $34 billion, and the two lowest priority categories—potential excess and unneeded items not economical for disposal—actually increased by $1 billion, or 7.6 percent.

It appears that the actions taken by DOD are not sufficient. We have not asked you here today to take potshots. There will always be minor aberrations in a system valued at more than $100 billion. We are wondering, though, if some fundamental changes need to be made to reduce the excessive inventories and lessen the opportunities for waste and abuse to occur.

We are pleased to welcome today Mr. Colin McMillan, the Assistant Secretary of Defense for Production and Logistics, and representatives of the Army, Navy, Air Force and Defense Logistics Agency. All of your prepared statements will be made part of the hearing records.

A couple of weeks ago we had representatives of TWA, Sears, and General Motors before the Committee.

We realize the magnitude of their spares problem is much smaller than yours, but to give you an example of what they told us, they said that they expect delivery on spares in 12 weeks from the time they order them. No matter what they are, they can get them. That was an average for industry.

The time we had for the Defense Department was like 440 days to 800-some days to get the spares ordered for the Defense Department. Anyway I look at that—it makes me believe our system is either out of kilter or there is something that I don't understand or know about.

I am going to insert for the record at this point for informational purposes the "DOD Classification of Secondary Inventories," and the Supply Systems Inventories statistics for the past 20 years.

[The information follows:]

Appendix I

DOD Classification of Secondary Inventories

DOD categorizes its secondary inventories into six classifications. Two classifications represent required stock.[1]

1. The approved force acquisition objective represents current operating stocks plus war reserves.[2]

2. The approved force retention stock is in addition to the approved force acquisition objective stock and is required to equip and support the U.S. approved forces from the day the war begins until production equals demand. Unlike approved force acquisition objective stock, DOD does not budget for retention stocks.

The remaining four classifications represent unrequired stocks, which are in addition to required stocks.

3. The economic retention stock has no requirement. However, DOD has decided to retain the stock for future peacetime use instead of satisfying possible future needs through procurement. Items retained in economic retention must have a reasonably predictable demand.

4. The contingency retention stock has no predictable demand or quantifiable requirement and normally would be in the Potential Excess category. However, DOD has decided to retain the stock for possible contingencies.

5. The numeric retention stock is the stock for which disposal is currently infeasible or uneconomical, and management has decided to retain it in the supply system. DOD began using this classification in 1982 for some secondary items, but no aircraft items were reported.

6. The potential excess is material excess to all authorized retention levels, but DOD has not determined it to be excess.

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[1] We grouped approved force acquisition objective stock and approved force retention stock together because they are categories of required stocks. According to DOD officials, the term "long supply" is used to describe stocks in excess of acquisition requirements. However, DOD's long supply includes materials that are not budgeted for but can be used to equip and support U.S.-approved forces from the day war begins until production equals requirements. Our values for stocks with no requirements do not include approved force retention stocks because they are defined by DOD as required stocks, even if they are not in the budget. Thus, our values for unrequired stocks are less than DOD's values for long supply.

[2] War reserves are stocks that are stored in peacetime to satisfy increased wartime consumption; they are intended to sustain wartime operations until resupply takes place.

TABLE 1.08

DEPARTMENT OF DEFENSE SUPPLY SYSTEMS INVENTORIES
(Billions of Dollars)

SECONDARY ITEMS c/

Fiscal Year	Total a/	Approved Force Acquisition	Approved Force Retention Stock	Economic Retention Stock	Contingency Retention Stock	Potential DoD Excess	Numeric b/	Unstratified Assets
1970	24.8	15.3	0.2	2.9	0.6	4.2	-	1.8
1971	24.0	15.0	0.1	2.2	1.0	3.9	-	1.8
1972	22.4	15.2	-	2.2	1.2	2.7	-	1.1
1973	22.7	15.1	-	2.5	1.5	2.7	-	0.9
1974	24.3	15.7	-	3.2	1.7	2.8	-	0.9
1975	26.8	17.7	-	3.0	2.1	2.9	-	1.1
1976	28.5	18.9	-	3.3	2.8	2.8	-	0.7
1977	30.7	21.3	0.4	2.4	3.5	2.4	-	0.7
1978	32.6	23.2	0.1	2.4	4.0	2.2	-	0.7
1979	36.4	26.0	0.1	2.5	4.0	2.6	-	1.2
1980	43.4	32.2	0.1	2.7	4.9	2.5	-	1.0
1981	48.3	35.5	0.1	2.8	5.3	3.0	-	1.8
1982	54.8	37.6	0.1	3.2	6.4	3.0	*	4.4
1983	60.7	42.0	0.2	4.2	6.3	4.1	*	3.8
1984	70.5	47.5	0.2	5.4	6.0	7.1	0.9	3.4
1985	82.8	50.3	0.3	6.6	10.8	5.6	2.0	7.2
1986	88.5	54.3	0.2	7.5	14.6	5.5	1.7	4.7
1987	94.1	59.0	0.3	7.7	12.9	5.0	3.3	5.8
1988	103.2	63.8	0.3	9.7	10.7	9.6	3.6	5.4
1989	108.5	68.7	0.3	11.7	8.1	10.1	4.1	5.4

* - Less than $100 million

a/ Figures may not add to totals due to rounding
b/ New category effective as of November 9, 1981
c/ Secondary items include uncategorized and shipboard supplies for years prior to 1986

Prepared by: Washington Headquarters Services
Directorate for Information
Operations and Reports

Mr. Murtha. We will put your statements in the record, but then if you will, Mr. McMillan, summarize your statement and then address this before we start the questions.

Summary Statement of Mr. McMillan

Mr. McMillan. We will make the statement part of the record.

The one thing I want to start with is that the current size of the Department's inventories of spares and supplies reflects the defense strategy of the eighties which called for development of a number of large new weapon systems and for a major modernization program.

The $109 billion supports nearly $400 billion invested in military equipment such as ships, aircraft and other complex weapon systems.

I will point out that the recent actions by the armed forces of the United States have demonstrated that our readiness is at a record high. I think the Soviet bloc threat has decreased in part due to our readiness.

I want to discuss the total inventory of active stocks. We have $75 billion in total inventory and then we have an additional $34 billion that has been a matter of some contention, and I don't think we can categorize that as bad buys, but instead it is material that is needed and used and is now in need of further repair or is uneconomical to repair.

It is items that were acquired and used, but are now outmoded as a result of modernization programs, material needed to support existing weapon systems for personnel beyond the next budget year, and material that was needed in the past and is being retained in the inventory for contingency purposes or because of retention policies which are now being changed.

The problems that you have heard about in the testimony, we are attempting to address. As a business person coming to this job and spending my first week here in the Government, I agree with you that lead time is rather critical. I have heard similar testimony from industry about short lead time, but there needs to be some perspective on that.

One is that we are dealing with complex weapon systems rather than individual parts. We are often dealing with them. I think we have some regulatory areas that could shorten the process and I am working on that. I have made that one of the first priorities with my staff when I came to Washington and there are also some statutory limitations that increase lead time. All these things need to be addressed, and we are going to address them.

Some of the briefings that I have had indicated that when we go to industry, we get a different time of how long it is going to take for them to provide the supplies than is indicated in the testimony they gave to you.

I don't know if anybody would like to elaborate on that.

General Bracken. Sir, I think one of the things that we need to keep in context is the times that were quoted to you by the industry as production lead time where the lead times that we refer to are administrative lead times plus production lead times.

[The statements of Mr. McMillan, General Murray, Admiral Davidson, Admiral Moore and General Bracken follow:]

NOT FOR PUBLICATION UNTIL RELEASED BY THE
SUBCOMMITTEE ON DEFENSE
APPROPRIATIONS COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

STATEMENT BY

HONORABLE COLIN R. MCMILLAN

ASSISTANT SECRETARY OF DEFENSE (PRODUCTION AND LOGISTICS)

BEFORE

SUBCOMMITTEE ON DEFENSE APPROPRIATIONS COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

SPARES

MARCH 14, 1990

Mr. Chairman and members of the committee, it is a pleasure for me to appear before you today to discuss the Department's inventory management programs and to update you on our efforts to improve the process. While an efficient and effective inventory management system is a primary objective of the Department of Defense, we recognize that any long-lasting solutions will require the commitment of both the Administration and Congress.

The DoD inventory management program is the largest in the world. It includes an inventory valued at approximately $109 billion, composed of nearly 5 million different items. The purpose of the inventory is to provide replacement parts and consumable items to maintain the readiness and staying power of our ships, aircraft, tanks, and other complex weapon systems used by our military forces. Quality weapon system support is one of the most important factors in the defense readiness equation; and today, as our Armed Forces demonstrated in Panama, our readiness is at a record high. While we all agree that we need an inventory of spare parts to sustain our forces, what is at question is whether the Department is investing taxpayer dollars wisely in the selection and quantity of procured items and whether we are managing these inventories effectively and efficiently.

The sheer size of the Department's inventories reflects the defense strategy of the 1980s which called for a major modernization effort and the development of a number of new weapon systems to transition rapidly from a "hollow" force to a military posture capable of executing the national security strategy. The $109 billion in spares and material supports nearly $400 billion invested in military capital equipment.

I would now like to take a few minutes to highlight what we have accomplished and where we plan to concentrate our efforts in the future.

DEFENSE MANAGEMENT REPORT (DMR)

The DMR consolidation studies for supply depots, maintenance depots, and inventory control points are now underway to eliminate unnecessary organizational layers of personnel and to streamline functions. In addition to structural changes, the DMR is also reducing supply system costs to manage materiel by an initial three percent. Proposed changes in the process to generate the savings include multi-year contracting, and use of the Stock Fund to (1) finance the acquisition or update of drawings and technical data for "best value" reprocurement actions and (2) procure forgings and castings to reduce substantially procurement lead times.

CORPORATE INFORMATION MANAGEMENT (CIM)

The CIM initiative will create design requirements for a new DOD-wide integrated information system with common approaches in seven initial areas. Representatives from each Military Department and Defense Agency are working in functional groups to achieve these objectives. Those areas directly affecting logistics include distribution centers and materiel management.

REDUCING INVENTORY BUYS AND REDUCING ON-HAND INVENTORY

As a result of dramatic world events and anticipated reductions in forces and weapon systems, the Department is undertaking two major actions: (1) to reduce what we buy for the inventory each year, which has a dollar impact on the budget, and

(2) to dispose of inventory on hand which is no longer needed to support weapon systems or previous threat scenarios.

REDUCING WHAT WE BUY

Within the Department's comprehensive plan, initiatives underway to reduce what we buy annually include:

Procurement Lead Time Reduction

Procurement lead times determine the amount of stock we must carry. The longer the lead time, the more inventory we must stock to ensure against extended delivery schedules and interrupted sources of supply. Recognizing the potential for significant savings if procurement lead times are reduced, the Department has targeted this area for major improvements. In April 1989, we issued guidance to the Services to reduce procurement lead times. In May 1989, the Department conducted a Procurement Lead Time Reduction Conference attended by senior inventory management and procurement personnel from all the Components to seek additional ideas and approaches for reducing procurement lead times. As a follow-on, a joint DoD/Industry task force is currently identifying specific implementation actions to reduce lead time. Other initiatives include better automation tools for the procurement process, greater use of multi-year contracting, and regulatory relief to remove impediments to timely procurements.

Revised Order Quantity Policy

Several years ago, in an attempt to obtain better price breaks on larger buys of spare parts, the Services and the Defense Logistics Agency began buying one year's worth of some items;

previously, smaller quantities were purchased on a more frequent basis using economic order quantity computations. In some cases, the annual buys were more economical; however, for many items the annual buys contributed to greater on-hand inventories with little improvement in prices. A number of audits found that an "annual buy" program increases the risk of buying items that will go into the inactive inventory. The Department issued guidance in June 1989 which ended the practice of annual buys and reestablished the procedures of using economic order quantity computations. However, to ensure that the Department did not swing too far in the other direction, guidance now requires that DoD Components solicit quantity price discounts routinely.

Use of Commercial Items and Distribution Systems

DoD initiatives to use commercial items and distribution systems include: (1) authorizing local purchase of non-weapon related supplies up to $5,000 per line item when this represents the best value; (2) "just-in-time" arrangements to deliver materiel directly from contractors to users; and (3) a series of regulatory and policy revisions to increase DoD's use of the General Services Administration (GSA) Federal Supply Schedule program. The net result has been a 36 percent increase over the last year in the use of commercial items and distribution systems (from $1.4 billion in FY88 to $1.9 billion in FY89).

Item Identification and Reduction

With almost five million items in the DoD inventory, the task of identifying and minimizing duplicate items is a significant challenge. The Federal Catalog System was originated in 1952 with this objective in mind. To the extent possible, automation is being used to scrutinize candidate additions to the inventory. The Department is presently in source selection for a new system called "Cataloging Tools on Line (CTOL)," an automated work station approach to cataloging new items as they are received from the provisioning process. CTOL will permit a more comprehensive review for item identification, which should prevent duplications from entering the inventory system. We expect this new capability to increase productivity by 30 percent.

To improve the solicitation process even further, the Department is acquiring a "Federal Logistics Data On Compact Disc" (FEDLOG) capability. FEDLOG places the entire federal catalog, plus selected Service data bases, on Compact Disc Read Only Memory (CD-ROM). This medium will allow users to research logistics data records quickly for the correct item to meet mission needs. The retrieval software also simplifies the identification of potential duplicate items that may be in the existing file. Adding this new capability will reduce the number of activities performing the cataloging function. Consolidation should inject greater discipline into the item identification process, resulting in better use of the CTOL and a probable reduction in overhead and administrative support costs.

Improved Initial Provisioning

"Provisioning" is the supply process that introduces the initial order of spares and repair parts to support a newly-fielded weapon system. This process predicts the type and number of spare parts needed before actual demand experience is available. It is an engineering estimate of what will be needed. In March 1989, we directed a comprehensive review of the provisioning process to determine if provisioning was contributing to inventory growth, particularly since we had just emerged from an extended period of new weapon system acquisition. The review process has now been completed, and we are in the process of defining appropriate actions for implementation.

Even though the task group found the provisioning process to be a small contributor to inventory growth, the review confirmed the need to improve the process to generate additional savings.

Responsive Reductions to Requirements

The Department is assessing whether extraordinary inventory management actions may be necessary to respond to anticipated force structure reductions, as they relate to reparable and consumable item management. Reparable items are the most expensive spares in our inventory, and, as the name implies, are repaired and reused after they fail. (An example of a reparable item would be a fuel control unit on an aircraft engine.) Requirements for reparable items are based on future training requirements (e.g., number of flying hours) and estimates of wartime utilization for the end items (e.g., aircraft) supported. Adjustments for force structure changes or reductions in operations are currently done through an automated process, which implies that the current system should be responsive to dynamic changes; however, we will monitor this activity closely.

Requirements for consumable items, which are generally piece parts for repairing end items and other items consumed in use, are based primarily on past demand. Adjustments to force structure changes for consumable items will be more difficult; however, the Department is currently developing the means to refine requirements linked to projected end item availability. We want to recognize, with the current complication of long lead times, that a sudden drop in demands could force on-order items into the inactive inventory; but management will be proactive in monitoring this activity.

On-Order Contract Terminations

After the requirement is identified, and the contract award has been made, changes in mission or demand occasionally make all or a part of an order for material move into the inactive category, i.e., items not consumed within two years. In order to preclude these kinds of orders from entering the inventory, DoD issued guidance on contract terminations to the field in December 1989. This guidance reemphasized the need to review and verify requirements prior to contract award and provided criteria to determine whether post-award termination of contracts is in the best interest of the Government.

REDUCING ON-HAND INVENTORY

What has already been procured, delivered, and stocked in our warehouses is money already spent, which means that reductions in the on-hand inventory do not generate a reduction in annual "procurement" dollars. Disposal of inventory does, however, reduce the cost of holding the material and reduce our requirements for warehouse space, both of which are sufficient reasons for reducing the on-hand inventory. Reduced space requirements do not address the need to upgrade or replace older warehouses. Initiatives to reduce on-hand inventory include:

Revision of the DoD Retention and Disposal Policy

During the late 1970s, the Department was under heavy criticism by the GAO for disposing of material that was still usable on weapon systems in the inventory, regardless of the number of years of supply on hand. Being responsive, the Department issued a new policy to retain all material, even though we understood it would migrate into an inactive inventory. Over time, that policy change accumulated a larger-than-expected inactive inventory. Now the Department is under opposite pressure to reduce the overall size of the inventory by disposing of that retained material.

Material has also been retained as the result of the military buildup of the 1980s. Retaining material that would eventually be used by an expanding and modernized force made good economic sense. Now, with a probable reduction in force structure and operating requirements, we are reevaluating our retention policy.

In our support of efforts to reduce inventories, we must, however, guard against sudden, abrupt changes in policy which may (1) reduce readiness, or (2) overwhelm our ability to dispose of unneeded material properly. Our plans are to permit an orderly, systematic implementation of new retention rules. We will concentrate first on reducing stocks of unserviceable and obsolete items, and will then evaluate stocks held for economic or contingency reasons. We will also look for opportunities to transfer material to meet foreign military sales needs, support humanitarian assistance programs, or satisfy low-intensity conflict requirements of other nations.

We are particularly concerned about the ability of the DoD, Federal, and State disposal programs to process large amounts of material in a short period of time. We are already pursuing alternative procedures to accelerate disposals in an orderly fashion, such as sales in place, reduced screening periods, and the use of storage space freed up by base closures as temporary material staging areas.

Our efforts to dispose of material are already showing results. Disposal of unserviceable and obsolete items has increased 30 percent over the last year (from $6.5 billion in FY88 to $8.4 billion in FY89).

A recent Senate Budget Committee report alleged that $30 billion of our spare parts are unneeded. This is simply not the case. Instead, $21 billion of that $30 billion in inventories are spares and supplies needed to support existing weapon systems or personnel beyond the end of the next budget year. These inventories, which have been referred to as "inapplicable" are more appropriately termed "inactive." One reason for retaining inactive spares is to continue support for older weapon systems, long out of production but still in use by our forces, allies, and friendly nations. Another reason is the high variability of demand for spare parts supporting today's complex weapons. Forecasting spares requirements two to three years in advance of delivery is not an exact science. Long procurement lead time between initial order and final delivery is a major contributing factor. That complication is one of the major targets of the Department's comprehensive integrated program to improve current buying policies and processes.

Ten percent ($10 billion) of our supply inventory is currently classified as "potential excess," material the Department does not expect to use in the future. Use of the term "excess" is also inappropriate, especially when applied to the larger inactive inventory ($34 billion). Approximately two-thirds of the dollar value of inventory that is ready for disposal consists of unserviceable items that were needed, used, and were, in fact, used to the point that they are now in need of further repair or are uneconomical to repair. The other one-third is made up of obsolete items, largely the direct result of a decade of modernization.

Warehouse Construction

Recent Congressional reports have alleged that DoD has initiated millions of dollars of new warehouse construction for the purpose of holding our purchases of "unneeded" inventory. This allegation is totally incorrect and purports to cast a dark shadow on the Congressional committees who have worked in partnership with the Department to achieve a balanced, well-planned, military construction program. The facts are that current DOD expenditures on warehouse construction are intended to improve productivity through modernization, replace damaged or outdated structures, or comply with new environmental standards for storage of hazardous material. During the past five years, the total net square footage available for material storage has actually declined by 4.5 percent. This emphasis has been on "replacement" facilities, not expansion.

Moreover, warehouse modernization improves inventory accuracy by improving warehouse location and retrieval capabilities. Our ability to find material in the proper warehouse location is up to 97.7 percent, an enviable record of performance for any large business.

OTHER INITIATIVES TO REDUCE THE COST OF DOING BUSINESS

Modernization of Inventory Management Information Systems

The Modernization of the Defense Logistics Standard Systems (MODELS) consists of a redesign of all of the DoD's logistics business transactions, using commercial electronic data interchange (EDI) technology and developing a structure of electronic "gateways" through which all electronic logistics traffic will pass. This technology improvement will establish a new "flexible standard" for transmitting logistics business transactions. The initial version of MODELS is scheduled for implementation in late 1991. The initial prototype tests at six Military Service and Defense Agency sites have been successful, and expansion from the initial test mode to the first pilot operational net is proceeding on schedule.

Spare Parts Pricing

The Department has made substantial progress since 1984 to identify and correct root causes of potential overpricing. Over 500 initiatives have been institutionalized by the Services and DLA through programs such as the Navy "Buy Our Spares Smart (BOSS)" program.

Voluntary refunds, where the Government has no direct contractual right to obtain compensation for a perceived overcharge, have been effective. The private sector is aware that the Government will pursue reconciliation for overpricing, even after contract award and payment, as well as other actions when fraud or defective pricing are involved. The numbers of refunds are down, which implies that our message to supply sources has been effective.

Stock Funding of Depot Level Reparables

Based on a successful Navy test, the Department is expanding to the Army and the Air Force its program to finance the procurement and repair of reparable items with stock funds. Under the stock fund concept, users must reimburse the stock fund with O&M funds rather than receiving them "free" as they do when reparables are financed through central appropriations. By establishing a buyer-seller relationship, users are better motivated to conserve items and repair only what they need. The Navy's implementation of stock funding depot level reparables decreased procurement and maintenance costs while increasing stock availability and weapon system readiness. The Department believes that the Army and the Air Force will realize similar benefits from the change.

Non-Conforming Parts

Recent audits have centered on parts in the inventory that do not conform to the specifications of the original contract. An action plan for correcting root causes of non-conformance was developed by the Services and the Defense Logistics Agency (DLA).

This plan contains 26 objectives addressing the pre-contract, contract award, and contract administration phases of procurement. DLA has already implemented major elements of the plan, well ahead of projected milestone dates.

Diminishing Manufacturing Sources

DoD established a Diminishing Manufacturing Sources task force to develop an implementation plan to reduce the impact of lost sources of supply and to find alternate sources to overcome the short-notice problem. At the same time, we have also been working with industry's Multi-Association Working Group to address the problems from their point of view as well. The plan includes such actions as improving life-of-type buy calculations, motivating industry to provide advance notification of intentions to discontinue production, and encouraging "after-market manufacturers" to buy existing manufacturing technology and production lines to ensure continued support to DoD.

Physical Inventory Management

The DoD physical inventory control program is composed of five major elements: (1) location audits, (2) physical inventories, (3) research, (4) quality control, and (5) performance measurement. The overall thrust of the program is to concentrate limited resources to fix problems with the greatest dollar impact on Department of Defense operations.

Maintaining accurate inventory records is a continuous and significant workload in DoD. Annually the Department conducts approximately 9 million warehouse location audits and 18 million record reconciliations, and physically inventories 3 million items. While the effort put forth in this area is formidable, the payoff makes it well worth the investment. Over 99 percent of the 39 million demands for material placed on the warehouses during FY89 were completely satisfied; again, an enviable record for any large business.

While errors do occur, such as the 80,000 jungle camouflage helmet covers mentioned in the staff report to the Senate Budget Committee, these anomalies are genuinely the exception rather than the rule. During the past several years, the GAO conducted seven independent sample inventories, with resultant unit and dollar value accuracy rates of approximately 95 percent.

While the Department's physical inventory control program has been able to cope successfully with substantially larger inventories and maintain or improve accuracy levels, the Department is continually striving for even higher levels of inventory accuracy and better security. To do so, the Department institutionalized a continuous improvement process through the annual Physical Inventory Control Program Plan (PICPP). The plan sets priorities and establishes guidelines for targeted process improvements over the next five years.

Applications of technologies such as bar coding, microcircuits, and radio frequency transmission are reducing human errors in data collection, recording, and transmission. The increased use of statistical techniques for process quality control are pinpointing more precisely where management attention is needed. Modernized ADP systems are improving the quality and timeliness of information needed for disciplined management and control. Ultimately, moving to a single asset balance record system should eliminate the need to reconcile multiple records and ameliorate a major source of inventory variances. The automation of depot operations and use of automated storage and retrieval systems is substantially reducing manpower-intensive tasks. Sophisticated control systems are also reducing the opportunity for pilferage and theft. Improved automated inventory techniques flag for investigation any unusual movement or loss of items. In addition, new warehouse facilities are inherently more secure than the aging facilities they replace, since internal security and resistance to external forced entry are part of the basic facility design.

Within the past six months the Department has submitted two reports to the Congress, "Inventory Security & Control Procedures Review and Modernization Plan," dated September 1989, and "Security & Control of Supplies for Fiscal Year 1989," dated January 1990. The two reports document the Department's comprehensive assessment of our system, its accomplishments to date, and our ongoing plans and programs for further improvement. A copy of each report can be made available for the record.

RECOGNITION OF IMPROVEMENTS ALREADY UNDERWAY

The current level of defense requirements is indeed, uncertain. Responses to these dynamic world changes are particularly difficult, given the inexact science of forecasting material demand. Despite the challenges of long lead times for budget development and approval, and lengthy procurement lead times, we have already made significant adjustments to our FY91 budget requirements for spares, currently under Congressional review, by reducing materiel acquisition budget requirements by $1.3 billion. These reductions were made possible as the result of actual or anticipated decreases in material safety levels, procurement lead time, non-demand based stockage, and materiel on-order.

ACTIONS FOR THE FUTURE

We have already made significant progress toward improving the Department's inventory management system. Clearly, much remains to be done. We must evaluate each of our current inventory management processes to determine the appropriate composition of DoD inventories and to restructure budget requirements that preserve military capability while reducing the cost of doing business. Specifically, we intend to:

1. Develop the ability to respond quickly to changes in force structure, base closures, and organizational realignments.
2. Establish quantitative goals to measure progress toward reducing on-hand inventory, procurement lead times, repair cycle times, and order quantities.
3. Revise retention policies and procedures for the timely and orderly disposal of material.
4. Pursue vigorously all practical alternatives to increase the use of commercial items, just-in-time techniques, and electronic ordering.
5. Examine the incentives that drive our people to do what they do.

Our objective in this comprehensive integrated review is to make best use of the taxpayer's dollar.

SENATE BUDGET COMMITTEE REPORT

With regard to the three recommendations of the Senate Budget Committee report, I am pleased to tell you that the Department has already taken aggressive steps. For example, we responded to our Inspector General's report of last November, which cited the $1.8 billion worth of spares above new requirements but still on order, by issuing a new policy on contract terminations, cited in the staff report. This change is reflected in the $1.3 billion reduction in the FY91 spares budget request.

We would also appreciate the Committee's assistance to remove statutory barriers in order to reduce inactive inventories. One place to begin is with the law prohibiting the Department from demilitarizing and disposing of nearly one million outdated small arms which have no military utility and constitute a portion of the inactive inventory. Another is eliminating the number of Congressional amendments which require the Services to procure items in addition to or in excess of specific demand requirements.

IN SUMMARY

What has transpired in the past we can do little about. From this point forward...and since we are all in this together...we must work together earnestly to put in place a process for continuous improvement, to govern our inventory management practices--now and in the coming years--for a newly defined military force capability. However complex the task may be, we have charted a course to reduce the cost of stewardship, while preserving the fundamental military capability of the United

States. The challenge belongs to both the Department and the Congress, and we look forward to working with you.

STATEMENT OF
MAJOR GENERAL CHARLES M. MURRAY
DEPUTY CHIEF OF STAFF FOR SUPPLY, MAINTENANCE, AND TRANSPORTATION
DOD SPARES PROGRAM

Mr. Chairman and members of the committee:

It is a privilege to appear before you to discuss the Army's inventory management program and most recent initiatives to streamline our inventory investment while maintaining the Army's readiness posture.

The Army manages over 377,000 items as Department of Defense Integrated Materiel Manager. Ninety-one percent of these comprise our secondary items inventory. The balance of our supply support is provided by the Defense Logistics Agency (DLA), the General Services Administration (GSA), and the other services.

The dollar value of our secondary items on hand inventory has grown from $5.5 billion to $14.2 billion over the last 5 years. In fiscal year 1989, we have increased the percent of applicable inventory by 3 percent. The result is that 70 percent of our present inventory now falls into the applicable category meeting a valid Army requirement. Total Army readiness rate for fiscal year 1989 was 90.9 percent. Stock availability, which represents the percent of customer requests which were filled from on-hand stocks, increased by 2 percent to 87 percent. For the past four fiscal years, AMC has achieved consistently high rates of overall stock availability, exceeding the 85 percent goal each year. At present, stock availability stands at 87 percent, which when the complexity and scope of items managed is fully considered, is quite significant. During this same period, the Army reduced its procurement requirements by $1 billion to $2.8 billion. These successes are even more impressive when considering the fact that the Army has introduced a number of new systems into its force. These achievements would not have been possible if our provisioning and requirements determination program were not effective.

While our performance analysis tools look at our peacetime achievements, our wartime achievements can be seen in our support to Operation "Just Cause". During the operation, AMC performed all necessary actions required to provide full supply support to our forces. Critical items were tracked from depots through air terminals to Panama. This included those items managed by DLA and GSA. From guns to butter, if the troops in Panama had a requirement, the AMC personnel located it and shipped it. Items not currently in stock at depots, were located in non-deploying units and directed for shipment to Panama. During Operation "Just Cause", AMC processed 2,054 requirements for a quantity of 242,751 items of equipment, ammunition and spare parts. We filled a remarkable 97 percent of the materiel requested.

INITIATIVES

The military success of Operation "Just Cause" affirmed the Army's ability to react to logistical requirements arising from changes in world politics. In addition, there can be little doubt that the maintenance of a ready Army in Europe has contributed to the changes in Eastern Europe and the Union of Soviet Socialist Republics (USSR). To meet the challenges presented by these geopolitical changes, the Army's logistics infrastructure has postured to accommodate planned force structure changes and has the flexibility to react to the evolution of political events in Europe. Through Army initiatives and the Defense Management Review (DMR) process, we have begun to streamline our inventory in conjunction with the downsizing of the force structure, while at the same time maintaining readiness and sustainability.

FORCE STRUCTURE CHANGES

The deactivation of Army units presents a challenge to AMC in our effort to utilize assets in the most effective and efficient way. AMC has taken actions to forecast force structure changes through reductions in program change factors (PCFs) which are utilized in the requirement forecasts for secondary items. These changes will be in place for our Mar 90 Budget

Stratification process. In view of the European reduction and force structure changes that are occuring within the Army, an embargo was placed on shipments of combat and tactical vehicles earmarked for USAREUR theater reserve stocks. The embargo, implemented Jan 90, halted shipment of 81 vehicles at a transportation cost savings of approximately $357,200. In Mar 90, after further analysis, the embargo was expanded to all major items, except selected medical items, destined for USAREUR theater reserve stockage and POMCUS through Sep 90. Embargoed assets will be distributed to other claimants in priority sequence. USAREUR, based on internally developed estimates, will draw down theater reserve stocks of secondary items through Sep 90 and cancel existing requisitions as required. War reserve assets remaining excess to USAREUR as of Oct 90 will be redistributed to other claimants. These actions are predicated upon pending force structure decisions. New definitized force structure changes will be the basis for a recomputation of total war reserve requirements.

We will continue to adapt our procurement and provisioning process as force structure changes occur. We are looking at these force structure changes in a positive manner, allowing us to redistribute some of the newer systems, while being able to phase out the more out-moded systems still in use by the Army today.

The drawdown of forces will likewise reduce maintenance requirements. Accordingly, by utilizing the above mentioned PCF adjustments in the end item files, the requirements determination process for secondary items will automatically reduce requirements for secondary items in both the repair and procurement forecast. These changes will be reflected from the major end item to the lowest level of consumable item utilized in the repair process. Further, the force structure changes have been taken into account in our supply depot workload forecast. These forecasts have been adjusted to reflect decreases in supply issue activity and appropriate increases in materiel returns processed as a result of force changes.

PROCUREMENT LEADTIME REDUCTIONS

The Army has been actively pursuing initiatives to reduce inventory leadtime investments. Among these initiatives are: obtaining competitively priced options, procuring spares concurrently with end item production, combining procurements into packages of like items allowing the Army to procure smaller quantities of many items and increasing the usage of requirements type contracts.

The Army is also reviewing the application of Just-in-Time (JIT)/Direct Vendor Delivery (DVD) principles. A test program is being conducted at a number of the Army's Inventory Control Points. We feel this effort will significantly reduce stockage levels in our depots while ensuring our requirements are met in a timely manner.

The U.S. Army Tank Automotive Command (TACOM) is participating in the OSD sponsored "Showcase for Procurement Innovation" program. This program has resulted in significant reductions in leadtime days. Small purchase procurements have shown an average reduction of 20 days, with the large purchase procurements achieving a 74 day reduction in fiscal year 1989.

The Army is moving ahead on other initiatives designed to reduce the Procurement Leadtime. We are currently constraining the Administrative Leadtime in the budget request at six months. This will ensure that recent changes in oversight legislation have not increased the investment levels excessively.

REVIEW OF RETENTION LEVEL ASSETS

The Army's effort to modernize our force is the largest single contribur to inventory growth. Further, the Army's modernization strategy involved the displacement and retention, not disposal, of many major weapon systems and their related parts. As the new systems were fielded, displaced weapon systems were moved from the active force to the reserve component, war reserves, or retained for Foreign Military Sales. Recent Defense Management Review Decision (DMRD) reductions are aimed at reducing retention of outmoded major systems (DMRD 927). With the major systems coded obsolete, we will be allowed to dispose of the associated secondary items.

Associated with the same DMRD, the Army has been authorized to reduce Numeric Retention Stocks (NRS). NICPs have been directed to proceed with disposals of NRS in a controlled manner, taking into consideration the items with a high potential for reprocurement in the near term. Army supply systems changes to preclude future materiel stratifying to this level are being implemented this year. Disposal of these assets will alleviate depot overcrowding. The initial estimate of savings, based on depot receipt processing, storage and operating costs is $36.5 million (FY 91-95). These figures may be reduced by increased materiel returns generated by force structure reductions.

Further contributing to increased depot stocks were conservative retention policies developed after the "disposal freeze" in 1985-86. In an effort to relieve the depots of overcrowding conditions, consistent with existing retention policies, AMC took aggressive action to dispose of inapplicable and unserviceable inventory. Disposals from our depots, as of the end of 1989, had increased by over 177 percent from 1988 ($279.1 million in 1988 and $772.1 million in 1989).

The Army is conducting a review of the costs associated with procuring and holding stocks. This scrub will ensure that we are accurately protraying these costs in our requirements forecast. The cost to hold and cost to procure are utilized in the computation process. A similar initiative associated with retention level reductions is a review of the Contingency Retention Level. NICPs have been requested to validate and justify the retention of assets in this level.

REDISTRIBUTION OF ASSETS

Three European Redistribution Facility (ERF) sites have been very successful in the redistribution of theater assets. Since July 1986, over $600 million worth of materiel has been redistributed to in-theater units and maintenance activities. Over $212 million worth of assets were redistributed in fiscal year 1989 alone. The ERF sites have also been valuable as retrograde processing facilities, managing the return of over $431 million worth of unserviceable depot level reparables to CONUS maintenance depots.

The Objective Supply System (OSS) is a process improvement which allows for an interactive, near real time processing of customer supply requests as well as the lateral redistribution of retail level assets. AMC has had a test bed in place at Fort Hood, Texas since December 1988. The order ship time (OST) at the OSS test bed has been reduced from an average of 12-25 days to 7 days. An expanded operational prototype is expected to be on-line at Fort Hood by the end of this fiscal year. An additional prototype site in Europe is planned for fiscal year 1991.

Closely associated with these efforts is the Selected Item Management System-Expanded (SIMS-X). This system provides our item managers with visibility of retail-level assets for about 17,000 items at the present time. This number will be increased to approximately 25,000 items by the end of this fiscal year. These items are primarily high dollar value, depot level reparables with current procurement or repair programs. With visibility of retail level assets, item managers are able to avoid unnecessary procurement or repair of these items.

CONTRACT TERMINATION INITIATIVES

A DODIG Audit Report, 29 Mar 89, covering contract termination procedures at Army inventory control points, alleged that item managers and contracting officers have made uneconomical termination decisions due to lack of policies and procedures that specified how to make such decisions. The audit report claimed that potential savings of $493.8 million could be realized during fiscal years 89 through 93 if ICPs established an effective contract termination decisionmaking process and a means of applying excess on-order assets as Government furnished material (GFM).

Several steps were taken during 1989 to improve the contract termination process. First, the respective roles of item managers and contracting officers were redefined. Second, a Data Base Advisory Group was instituted at each ICP to oversee the correction of data base errors; to emphasize enforcement by review authorities of valid excess on-order values to preclude both overstated and understated excess dollars; and to manage a tracking system for recording contract cutback and termination attempts, both successes and failures, and resulting cost avoidances. Third, an Economic Cutback and Termination Model was developed to assist the item manager in making cutback recommendations based on automated economic considerations. Fourth, updated guidance was issued, including improved automated procedures for identifying long supply and excess stocks for use as GFM. And finally, a quarterly cost avoidance report was initiated to determine the number and dollar value of contract cutbacks and terminations. The report also provides the number of contracts for which GFM was provided and the dollar value of the GFM assets. During FY89 and 1st Quarter FY90, the report revealed the cutback or termination of 271 contracts valued at $24 million and over $6 million worth of excess assets used GFM. Refinements to the cutback model and our reporting system are expected to show much higher cost avoidances in the future.

ARMY PRICE CHALLENGE PROGRAM

Through the voluntary refund program we collected $47,000 during fiscal year 1989. Although this figure is down from fiscal year 1988 when $991,000 was recovered, we feel this indicates success of our program to improve spare parts acquisition. During the time-frame between fiscal year 1984 and fiscal year 1989, AMC processed 260 voluntary refunds valued at $7.8 million. Historically, the number of refunds and the total dollar amount vary widely from year to year. It is AMC's policy to request voluntary refunds in all instances of suspected spare parts overpricing.

The Army's world-wide Price Challenge Program utilized a 24 hour hotline on which all Army personnel can report suspected overpricing in spares procurement. From fiscal year 1984-89, the Army has received and resolved nearly 11,000 price challenges with a projected cost avoidance of over $300 million.

REDUCING THE COST OF DOING BUSINESS

As a result of DMRDs 901, Reducing Supply Systems Costs, and 904, Stock Funding Depot Level Reparables, the Army will transition all depot level reparables into the Army Stock Fund (ASF), effective 1 Oct 90, and concurrently begin financing our NICPs and depot support functions with stock fund. Stock funding DLRs will improve field level returns on these high dollar spares. It allows AMC more control over inventories, which will result in fewer buy actions and more reliance on repair.

Along with these two initiatives and as part of DMRD 904, Army is also bringing under the stock fund umbrella our DLR depot maintenance programs. These three areas, procurement of DLRs, logistics support, and depot maintenance have all been funded from separate pots of money. Funding constraints in any one of these can cause our total support to fall short. Bringing these under the Army Stock Fund will for the first time give us the ability to balance our support efforts. Army wholesale managers will now have the flexibility to adjust funding levels to ensure that the total support effort is coordinated and effective. We will be able to more quickly react to changing priorities and scenarios. This is critical with the events currently going on in today's military and political environment. Since DLRs are no longer free issued, we should experience fewer demands and increased unserviceable returns.

EVOLVING AUTOMATION CHANGES

Another DMR initiative which will dramatically impact our supply business in the coming year is in the integration of the wholesale and retail logistics systems into one seamless system. This initiative centers on total asset visibility and weapon system orientation. Using the concept described earlier as the Objective Supply System, together with visibility of stocks at all echelons, the Army will buy only items needed to replace losses and maintain optimum inventories. Our objective is also to maximize availability of the weapon systems by judicious repair and distribution decisions. The Army logistics system will target on the most pressing needs for keeping our weapon systems in operation through the use of a dynamic repair and distribution capability. This responsive capability is not only economically attractive but it gives us an edge in contingency situations as well. The plan is to modify the logistics information systems in the field, in the depots and at the NICP so that real time asset data is available to decision makers.

With respect to AMC's planned automation changes, one concern we have is the ADP funding cap. This cap, applied to AMC in fiscal year 1990, is at 89 percent of our fiscal year 1989 actual outlay. This not only keeps us at the minimum, "stay alive" level, but is also prevents us from using automation productivity tools to overcome personnel reductions. In particular, the automation cap has delayed the start of our DMR initiatives to develop a streamlined supply system with vertical visibility of stock. The goal is to eliminate excess inventories and reduce personnel requirements. Since modernization initiatives are new requirements over and above the minimum operating level of funding, we require an exemption from the cap as soon as possible. I would like to point out that the projected savings from the automation related DMRs were removed from the future Army budgets beginning in fiscal year 1990.

CONCLUSION

The evolving logistics automation and other initiatives I have outlined reflect the Army's approach to inventory management for the 1990s and beyond. While we are proud of the successes of our inventory management program over the past five years, we know that greater effectiveness and efficiencies can be gained. By aggressively pursuing the optimization of our inventory in support of readiness and sustainment, we believe we have postured the Army to meet the fiscal challenges of the next decade. Further, we have established the infrastructure necessary to react to force structure changes in response to the evolving geopolitical environment.

STATEMENT OF RADM DAVIDSON

Mr. Chairman, Members of the Subcommittee,

I am RADM James P. Davidson, Executive Director of Supply Operations, Defense Logistics Agency (DLA). I welcome the opportunity to appear before this Subcommittee and address DLA's spare parts management practices. Before addressing specific topics I will summarize the DLA mission to provide the members with an update of the scope of our business. In support of the Military Services DLA buys, stores, and issues consumable hardware items, food, fuel, medical supplies, uniforms and textiles. In Fiscal Year (FY) 1989 DLA:

- Managed 2.9 million items, or 58 percent of the National Stock numbered items used in DoD today. We stock 2 million of these items and the dollar value of our inventory on hand at the end of FY89 was 12.6 billion dollars, including Fuel. Our inventory is financed through a revolving fund called the Defense Stock Fund.
- Made stock fund sales of 11.4 billion dollars.
- Processed over 29 million supply requisitions, of which 19 million were for stocked items, while the remaining 10 million were supplied directly to customers from commercial sources.
- Processed over 9 million requisitions for the 950,000 items in our weapon system support program, in support of over 1,000 different weapon systems in all the Services.

Specific topics discussed in recent GAO reports and the Senator Sasser Report include excess materiel on order, the Diminishing Manufacturing Source (DMS) Program, and procurement lead time. I will address these topics after giving the Subcommittee our perspective of the overall issue of inventory management in our changing worldwide environment.

The Senate report noted 43 billion dollars growth in DoD inventories over a five-year span. To provide some scale, our growth in that same period was 2.9 billion. We share your concern about size of our inventory, and we certainly view it as a serious issue. Inventories have increased at a rate of about 5 percent a year for the past several years to a present level of 12.6 billion dollars. Thirty-one percent of our growth in the past decade is attributable to price increases, and 24 percent to our expanded mission. We manage 50 percent more items now than in 1980. The remainder is mainly associated with retention policies, returns, DMS and demand fluctuation.

The part of our inventory labelled "inapplicable" or "long supply" amounts to 3.8 billion dollars. Significant contributors to long supply are demand fluctuation, extended retention policies, customer returns, the DMS program, and capitalizations. An unquantifiable part includes repair parts for declining-use weapon systems and for the used but now unserviceable spares that make up a large part of the Services' long supply.

Our "inapplicable" inventories do not represent deliberate overbuying or an attempt to just spend the money as has been suggested. We have both quantitative and financial controls. Quantitative controls limit the amount of procurement, how much should be stocked, and decisions are subject to a number of different review levels based on ascending dollar values. Financial limits are dictated by the dollars generated in a revolving fund used to fund inventory acquisition -- the Defense Stock Fund. Controls over inventory buying are self-imposed; that is, the procurement dollars available to replenish our stocks are a derivative of materiel usage. This is the perfect world. I would note that many item examples and conditions raised in recent reports have a common thread, i.e., situations in an imperfect world. Loss of suppliers, debarments, litigations with contracts, cause us to 'buy-around the problem' or temporarily overinvest to ensure an interrupted support.

We have 347 million dollars in excess on order materiel as of FY 1989. This is a 35% reduction to the $534 million which existed at the end of FY 1986. This reduction was a result of implementation of specific item manager controls to address a growing level of on order excesses. In early 1988, we imposed commodity reporting and internal audits to ensure continuing attention. Excess on order represents about 6 percent of our total orders outstanding and requires a disproportionate share of both the Government's and the contractors' resources to make a termination decision. It is not always smart to cancel existing orders. The decision process is highly judgemental and there is an absence of readily available cost data. To remedy this condition we are prototyping a new cost decision model for use by our field activities in FY 1990. This cost model will make visible the cost elements and economic tradeoffs between termination and continuation. This will alleviate much of the manual labor costs now required by the current process and strengthen both the credibility and timeliness of the decision. Our goals are to see that policies are clear and well-founded and to give our managers adequate tools to execute these policies.

DLA established the Diminishing Manufacturing Source (DMS) program in the mid-1970s when the technologies of the electronics world were beginning to change dramatically. The items impacted the most have been electron tubes and microcircuits. As some of these technologies become obsolete in the commercial world, we frequently are faced with a lack of manufacturing sources for items still in use by the military. The need for parts for which we make life-of-type buys ranges from older systems scheduled for replacement within the next few years, through the F14 fire control systems, and beyond that to the systems in the B1 bomber. Not only do we need to ensure that we have or can obtain sufficient parts to repair the systems during their life cycle, we also need to have parts available for contractor use in new production of weapon systems and components. The alternative would be lengthy and costly redesign and retrofit of the systems.

Only about 8500 out of our 2.9 million items are included in the program, just three tenths of one percent. Of these, we have made life-of-type buys on fewer than 40 percent. The remaining items we have been able to provide through other means. Even though the number of items is small, the task we face is difficult. Our ability to forecast parts needs beyond the near term is limited. We make a life-of-type buy only when there is no more economical alternative, and we base the decision on the best information available at the time.

The Senate report referred to 13,000 years worth of stock on a microcircuit die. Let me assure the members of this Subcommittee that those figures are not in proper context. The reported data is only half the story. The life-of-type buy was a joint initiative by DLA and the Navy. Between us, some 3,000 are being used annually. Remaining stocks are estimated to last 16 years -- the life of the F14A Tomcat that uses that die.

We recognize that this program, so critical to continued outyear readiness, must be managed in such a manner that we do not have haphazard spending just to be on the safe side. We work with the Military Services and industry on a continuing basis in order that our life-of-type buy decisions are based on the best available data. We continue to search for new ways to do a better job.

Procurement lead time is the time required to award a contract to a vendor (administrative lead time, or ALT) and then to receive the stock in our depots (production lead time, or PLT). Shorter lead times reduce the risk associated with forecasting errors. This translates to the potential for less inventory growth on one side, and reduced need for safety stock on the other. Since 1986, we have reduced ALT at our parts centers by 28 days, and PLT by 22 days, to a total lead time today of 319 days. The improvements come from reducing backlogs, streamlining the process, more use of electronic ordering and other "just-in-time" type processes, and tighter controls on lead time growth. We have had a program in place since 1986 to reduce lead times, and, effective as it is, we plan to reduce even further. Production lead time can be reduced somewhat by simply asking for shorter delivery times in our solicitations. We have to be careful not to curb competition by cutting to the point where only one vendor can produce it, but we believe we can make some headway in that area. At our Electronics Commodity, for example, we are cutting back requested delivery times by 20 days each buy.

During the past five years, and through the FY 95 MILCON Construction program, DLA's emphasis has been and continues to be on "replacement" warehouses. The majority of our warehouses are over 45 years old and these types of modernizations improve the processes and the overall accuracy of performing today's distribution requirements. We have also established a modernization program to install narrow-aisle racking to maximize utilization of the total warehouse cube. Through these efforts, we have been able to reduce our overall warehouse occupancy rate and maintain a 99 percent locator accuracy. When the total program is complete, we will be able to accomplish our mission with fewer warehouses than we have today.

We recognize the disadvantages of carrying too much stock and we are striving to maintain the minimum inventory necessary to meet our changing environment. We have a number of initiatives to reduce our inventories, especially in the face of the down-sized defense posture.

- First of all, we are buying less. We abandoned the 12-month minimum buy policy nearly four years ago. Last year we bought over a billion dollars less than we did three years ago, in an environment of relatively steady sales. We are reducing this year's buys even further, as a hedge against anticipated demand reductions coming from the European drawdown. These reductions are reflected in smaller procurement receipts about a year later, as receipts lag purchases by a lead time. There is some risk associated with these reductions, but we believe it to be prudent to hold back a little now, rather than assume that demand will continue at current rates. We are also working to reduce our lead times and to get more items out of Government warehouses by relying on "just-in-time" type practices where they apply.

- Second, we are disposing of more inventory. Disposals in 1989 were 317 million dollars, five times the level in 1986. The GAO was critical of the number of items in our inventory with no demand in two years, but history shows that two years of inactivity does not make an item obsolete. Even after five years with no demand, one in five items will still be needed. The Department of Defense was criticized in 1984 for disposing of items and then repurchasing --- that is a costly practice and we want to avoid that. So we are disposing more, but not opening the floodgates. We plan to dispose of 200 million dollars a year for the next five years.

- Third, we are trying to improve our ability to predict customer demand. Demand fluctuates wildly for most of our items, and long-term behavior is difficult to predict. This causes shortages as well as excesses. We can get some improvement by tailoring the forecasting technique to each item's characteristics, but the big gains will come when we have better visibility of up-to-date usage and application data. Both better demand forecasting and shorter lead times will allow us to reduce safety stocks without degrading customer support.

- Finally, we can gain from increased visibility of assets held at the retail level. This will allow us to fill requirements by redistributing excesses already out there rather than by buying more. The first source of materiel should always be stocks in the hands of the Department, rather than new procurement.

As a final note, much of what is needed involves an investment to reduce the cost of doing business and improve the decision making process. Our systems modernization effort is designed to give item managers and buyers better access to better data, and better tools to help them make decisions. We are using an automated system that was designed in the sixties, deployed in the seventies, became obsolete in the eighties and is totally inadequate for the nineties. Our item managers handle, on average, about 4,000 items apiece. Some manage as many as 15,000 items. There simply aren't enough hours in a day to do that by hand. Most of the deficiencies cited in the various GAO reports can be dealt with by improving our system. Our people aren't out there making bad buys on purpose; they just have too much paper on their desks and too little good data to work with. We intend to give them better and more timely requirements determination, faster buy processing, full asset visibility and smarter decision tools.

There also needs to be a commitment to streamline our operations to reduce the cost of doing business. A number of the Defense Management

Review actions are directly related to improvement in Spares Management and we would solicit the Committee's support in continuing these efforts in FY 91 and beyond.

Mr. Chairman, I thank you for the Subcommittee's attention and I appreciate the opportunity to appear here today to present DLA's views on inventory management.

We anticipate that the existing stocks of shirts will be exhausted in about seven years.

NOT FOR PUBLICATION UNTIL
RELEASED BY THE HOUSE
APPROPRIATIONS COMMITTEE

STATEMENT OF

REAR ADMIRAL ROBERT M. MOORE, SC, USN

ASSISTANT COMMANDER

FOR

INVENTORY AND SYSTEMS INTEGRITY

NAVAL SUPPLY SYSTEMS COMMAND

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

14 MARCH 1990

NOT FOR PUBLICATION UNTIL
RELEASED BY THE HOUSE
APPROPRIATIONS COMMITTEE

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I AM REAR ADMIRAL BOB MOORE, ASSISTANT COMMANDER FOR INVENTORY AND SYSTEMS INTEGRITY AT THE NAVAL SUPPLY SYSTEMS COMMAND. I AM PLEASED TO BE HERE TODAY TO DISCUSS NAVY SPARE PARTS MANAGEMENT. WHEN I TESTIFIED BEFORE THIS SUBCOMMITTEE LAST YEAR I WAS PRIVILEGED TO RELATE THE DRAMATIC INCREASES IN NAVY READINESS THAT OUR SPARES INVESTMENT HAD HELPED ACHIEVE AND I DESCRIBED A NUMBER OF INITIATIVES WE HAD UNDERTAKEN TO FURTHER IMPROVE OUR SYSTEM.

DURING THE PAST YEAR, WE HAVE MADE SIGNIFICANT PROGRESS IN BETTER UNDERSTANDING THE FUNDAMENTAL CAUSATIVE FACTORS BEHIND OUR INVENTORY GROWTH AND IN IMPLEMENTING INITIATIVES TO IMPROVE OUR INVENTORY MANAGEMENT. AFTER SOME INTRODUCTORY REMARKS ABOUT THE NATURE OF THIS INVENTORY GROWTH AND THE 'LONG SUPPLY' INVENTORY ASSOCIATED WITH IT, I WANT TO FOCUS ON OUR ACCOMPLISHMENTS THIS PAST YEAR AND ON OUR CONTINUED AGGRESSIVE EFFORTS TO IMPROVE INVENTORY MANAGEMENT IN THE NAVY.

I WOULD LIKE TO START TODAY BY DEALING WITH TWO ISSUES WHICH I BELIEVE ARE NOT IN PERSPECTIVE BASED ON RECENT AUDIT AND PRESS REPORTS ON THE INVENTORY ISSUE: THE IMPLICATION THAT INVENTORY GROWTH HAS BEEN UNCONTROLLED AND CANNOT BE RATIONALLY EXPLAINED AND THAT MOST SO-CALLED EXCESS INVENTORY IS THE PRODUCT OF BAD BUYING OR OVER-BUYING OR IMPROPER INCENTIVES AND GOALS. IT IS NOT MY PURPOSE TO ASSERT THAT NO ADDITIONAL IMPROVEMENT IS REQUIRED. IMPROVEMENT IS NEEDED, AND I WILL TELL YOU SPECIFICALLY WHAT WE ARE DOING. MY PURPOSE INSTEAD IS TO PROVIDE THE PERSPECTIVE WHICH I BELIEVE WILL DEMONSTRATE THAT THE DOLLAR MAGNITUDE OF OUR CHALLENGE IS FAR LESS THAN SOME OF THE AUDITS AND PRESS REPORTS IMPLY.

INVENTORY GROWTH

WHEN YOU CUT THROUGH THE MYRIAD OF NUMBERS AND CATEGORIES, THERE ARE TWO SETS OF NUMBERS WHICH ATTRACT ATTENTION AND CAUSE CONCERN--EACH OF THESE HAS A PERSPECTIVE WHICH I WOULD LIKE TO LEAVE WITH THIS SUBCOMMITTEE:

- OUR INVENTORIES HAVE GROWN SUBSTANTIALLY IN THE 1980'S--BY ABOUT $24 BILLION--FROM ABOUT $8.7 BILLION IN 1980 TO $32.4 BILLION TODAY.

  PERSPECTIVE: MOST OF THIS GROWTH WAS ROOTED IN TWO FACTORS, EACH ACCOUNTING FOR $9-10 BILLION IN GROWTH: INVENTORIES IN SUPPORT OF WEAPONS SYSTEMS AND PLATFORMS THAT BECAME OPERATIONAL SINCE 1980, AND TURN-IN TO THE SUPPLY SYSTEM OF SPARES AND INSTALLED ITEMS ASSOCIATED WITH WEAPON SYSTEMS WHICH WERE MODERNIZED BY REPLACEMENT OR UPGRADE.

- 'UNREQUIRED' INVENTORY--SOMETIMES CALLED EXCESS, LONG SUPPLY, OR INAPPLICABLE INVENTORY--GREW FROM $3.1 BILLION IN 1980 TO $11.9 BILLION TODAY.

  PERSPECTIVE: TERMS LIKE 'UNREQUIRED' AND 'EXCESS' IMPLY THAT THIS LEVEL OF INVENTORY RESULTED LARGELY FROM BAD BUYS OR OVER-BUYS AND THAT THE INVENTORY HAS NOT BEEN USED AND WILL NEVER BE USED--IN SHORT, THAT IT IS USELESS. THIS IS NOT

> ACCURATE. IN FACT, THE VAST MAJORITY OF THIS INVENTORY LEVEL SERVED THE USEFUL PURPOSE FOR WHICH IT WAS INTENDED WHEN BOUGHT. IN THE CASE OF REPAIRABLE ITEMS WHICH CONSTITUTE THE BULK OF OUR LONG SUPPLY (APPROXIMATELY 70 PERCENT), THESE ARE ITEMS WHICH FOR THE MOST PART WERE USED AND REPAIRED THROUGHOUT THEIR LIFE. ON AN OVERALL BASIS WE ESTIMATE THAT ABOUT 80 PERCENT OF OUR CURRENT LONG SUPPLY INVENTORY IS THE DIRECT RESULT OF RETIREMENT OF WEAPONS SYSTEMS OR ITEMS MADE OBSOLETE DUE TO WEAPONS SYSTEM UPGRADES.

IN SHORT, BOTH THE GROWTH IN OUR INVENTORIES AND THE CURRENT LEVEL OF LONG SUPPLY IS VERY LARGELY A BY-PRODUCT OF FORCE MODERNIZATION AND GROWTH, WHETHER THROUGH INTRODUCTION OF NEW SYSTEMS OR UPGRADE OF OTHERS.

FORCE MODERNIZATION AND GROWTH IS AN ISSUE THAT THE MEMBERS OF THIS SUBCOMMITTEE KNOW WELL, AND IT IS NOT NECESSARY FOR ME TO DWELL ON THE MANY NEW AND MODERNIZED SYSTEMS BROUGHT ON LINE DURING THE 1980'S. THERE IS, HOWEVER, A NEED TO PROVIDE SOME DATA AND ANALYSIS ON THE CURRENT LEVEL OF 'LONG SUPPLY' AND HOW IT IS IMPACTED BY FORCE MODERNIZATION AND GROWTH.

AS INTRODUCTION OF NEW SYSTEMS WAS BEING ACCOMPLISHED, WE WERE REDUCING THE NUMBERS OF OTHER WEAPONS SYSTEMS THAT HAD SERVED FOR MANY YEARS. A GOOD EXAMPLE IS THE F-4 PHANTOM AIRCRAFT, WHICH HAD BEEN THE MAINSTAY OF FLEET AIR DEFENSE AND VETERAN OF COUNTLESS HOURS IN COMBAT IN VIETNAM, WHICH IN THE 1980'S WAS ASSIGNED A ROLE IN RESERVE OF THE ACTIVE FORCE. SIX HUNDRED F-4'S WERE FLYING IN 1969 AND 1970, LOGGING 200,000 FLYING HOURS PER YEAR. TWENTY-FIVE RESERVE F-4 AIRCRAFT NOW

FLY ABOUT 8,000 HOURS A YEAR. AS THE NUMBER OF ACTIVE AIRCRAFT WERE REDUCED, SPARES NO LONGER NEEDED BY END USERS WERE TURNED IN TO THE SUPPLY SYSTEM. THE MAJORITY OF THESE WERE REPAIRABLE ITEMS WHICH HAD BEEN USED AND RESTORED NUMEROUS TIMES, ON AIRCRAFT CARRIERS AT SEA AND MARINE AIR GROUPS WHEREVER THEY WERE STATIONED. IN ADDITION, WHOLESALE REQUIREMENTS IN SUPPORT OF DEPOT REPAIR TURN AROUND WERE REDUCED AS WELL, ALTHOUGH THE ASSETS REMAINED. THESE SPARES HAD SERVED THEIR PURPOSE, BUT AS REPAIRABLES, THEY WERE NOT CONSUMED. UNDER NORMAL CIRCUMSTANCES, A REASONABLE QUANTITY WOULD BE RETAINED FOR ECONOMIC OR CONTINGENCY PURPOSES, AND THE REMAINDER WOULD BE DISPOSED. HOWEVER, THE IMPOSITION OF A DISPOSAL 'MORATORIUM' IN 1984 LED TO RETENTION OF ALL ASSETS. THUS, THEY REMAIN TODAY ON THE INVENTORY RECORDS, ALMOST ENTIRELY CATEGORIZED AS 'LONG SUPPLY'. WE HAVE $925M IN LONG SUPPLY SPARE PARTS IN OUR WAREHOUSES FOR THE F-4'S ALONE... THIS IS ABOUT EIGHT PERCENT OF OUR TOTAL 'LONG SUPPLY'.

MODIFICATIONS AND UPGRADES OF EXISTING WEAPON SYSTEMS ALSO LED TO INCREASED 'LONG SUPPLY'. OUR POLICY IS THAT REPAIRABLE UNITS REMOVED FROM A WEAPON SYSTEM, AS WELL AS THEIR SUPPORTING SPARES, SHOULD BE 'TURNED IN TO SUPPLY' FOR CONTROL AND POSSIBLE REUTILIZATION. AN EXAMPLE OF THIS IS REPLACEMENT OF THE F-14 FIRE CONTROL RADAR MEMORY, WHICH STARTED IN 1983 AND WAS COMPLETED IN 1988. AS THE UNITS WERE REPLACED, THEY WERE TURNED IN TO SUPPLY. AS A CONSEQUENCE, WHILE WE ONLY PROCURED ABOUT 50 SPARES TO SUPPORT THIS SYSTEM, AS OF MAY 1989 WE HELD 355 UNITS, VALUED AT ALMOST $57 MILLION, IN 'LONG SUPPLY'. THREE HUNDRED OF THESE UNITS WERE THE OBSOLETE INSTALLATIONS. THERE ARE MANY SIMILAR EXAMPLES. MANY OF THE UNITS TURNED IN HAD NOT BEEN BOUGHT AS SUPPLY SYSTEM SPARES. STRICT ADHERENCE TO THE DISPOSAL MORATORIUM CAUSED US TO TREAT THEM AS SUCH ONCE THEY WERE TURNED IN.

THESE EXAMPLES ARE NOT ANECDOTAL. IN 1989, WE STUDIED A SIGNIFICANT SAMPLE OF OUR LONG SUPPLY INVENTORIES. ONE MAJOR AREA WE STUDIED WAS AVIATION REPAIRABLES WHERE WE FOUND THAT THE LONG SUPPLY ON HAND RESULTED FROM THE FOLLOWING:

- 73% OF THE VALUE OF 'LONG SUPPLY' SPARES ON HAND WAS DUE TO AIRCRAFT MODIFICATIONS WITH SUBSEQUENT TURN-IN OF INSTALLED COMPONENTS AND ASSOCIATED SYSTEM STOCK MADE OBSOLETE BY THE MODIFICATION.

- 22% WAS FOR ITEMS WITH REDUCED REQUIREMENTS DUE TO DECLINE IN THE WEAPON PROGRAM.

- 3% WAS DUE TO FORECASTED DEMAND WHICH DID NOT MATERIALIZE DUE TO RELIABILITY IMPROVEMENT.

WE BELIEVE THESE ANALYSES ARE VERY HELPFUL IN DEMONSTRATING THE POINT THAT OUR LONG SUPPLY INVENTORY LARGELY WAS DRIVEN BY MODERNIZATION AND THAT THESE INVENTORIES SERVED THE USEFUL PURPOSES FOR WHICH THEY WERE ACQUIRED.

TWO OTHER FACTORS HAVE COMBINED TO MAKE OUR LONG SUPPLY INVENTORY APPEAR TO BE LARGE: A PRICING POLICY WHICH REQUIRES SPARES BE VALUED 'ON THE BOOKS' AT OR NEAR FULL PRICE, WHICH I WILL DISCUSS MORE LATER, AND THE DISPOSAL MORATORIUM. WE HAVE DEVELOPED A PILOT DISPOSAL PROGRAM TO RETAIN SMALLER QUANTITIES OF ITEMS WITH LITTLE FURTHER USEFULNESS ASIDE FROM CONTINGENCY PURPOSES AND TO CONTINUE DISPOSING

ENTIRELY OF OBSOLETE ITEMS. WE INCREASED DISPOSALS TO ALMOST $1.2 BILLION IN 1989, AND WE ESTIMATE WE WILL DISPOSE OF UP TO $3 BILLION OF NOT-READY-FOR-ISSUE INVENTORY THIS YEAR. LET ME AGAIN EMPHASIZE THAT THIS IS NOT INVENTORY RECENTLY BOUGHT--THESE ARE SPARES AND INSTALLED COMPONENTS THAT HAVE SERVED THEIR USEFUL LIFE. THEY ARE NOT WORTH $3 BILLION, THOUGH OUR ACCOUNTING PROCEDURES REQUIRE THAT VALUATION.

INVENTORY MANAGEMENT IMPROVEMENTS

I WILL NOW PROVIDE YOU AN UPDATE OF OUR INVENTORY MANAGEMENT IMPROVEMENT EFFORTS. I WILL CATEGORIZE IMPROVEMENTS INTO FIVE BROAD AREAS, AND ADDRESS EACH OF THEM IN DETAIL. THESE AREAS ARE: REQUIREMENTS DETERMINATION, PROCUREMENT, ON HAND INVENTORY, SPARES AT THE END OF THEIR LIFE CYCLE, AND THE INVENTORY MANAGEMENT ENVIRONMENT.

REQUIREMENTS DETERMINATION

ACCURATE DETERMINATION OF THE REQUIREMENTS FOR INVENTORY IS OF FUNDAMENTAL IMPORTANCE IN ANY SYSTEM. EACH OF OUR INVENTORY CONTROL POINTS HAS EMBARKED ON RESEARCH INTO BETTER METHODS OF FORECASTING DEMAND FOR THEIR ITEMS, LOOKING AT IMPROVING THE STABILITY OF LONG TERM FORECASTS, AND DETECTING TRULY INCREASING OR DECREASING TRENDS IN ITEM DEMAND, RATHER THAN RANDOM FLUCTUATIONS. WE ARE DEVELOPING GRAPHICAL DISPLAY TECHNIQUES TO HELP ITEM MANAGERS MAKE BETTER DECISIONS MORE QUICKLY.

WE MAKE EXTENSIVE USE OF INFORMATION ABOUT THE FUTURE UTILIZATION AND CONFIGURATION OF THE WEAPON SYSTEMS WE SUPPORT. WE HAVE BEEN IMPROVING THE VALIDITY AND TIMELINESS OF THIS DATA, PRIMARILY THROUGH THE INCREASED USE OF ADVANCED INFORMATION PROCESSING SYSTEMS. IT IS MORE ECONOMICAL TO QUICKLY MOVE DATA BETWEEN A PROGRAM MANAGER AND THE PEOPLE WHO SUPPORT HIS WEAPONS THAN IT IS TO BUY THE WRONG ITEMS BECAUSE OF A LACK OF THAT DATA. I WILL DISCUSS THIS MORE WHEN I ADDRESS ADP MODERNIZATION LATER.

ONE RECENT EFFORT TO GET OUT IN FRONT OF DECLINING DEMAND IS AN AGGRESSIVE EFFORT AT OUR SHIPS PARTS INVENTORY CONTROL POINT TO IDENTIFY AND ELIMINATE DEMAND THAT ORIGINATED FROM SHIPS DUE TO BE DECOMMISSIONED DURING THE NEXT TWO YEARS.

REQUIREMENTS ARE DYNAMIC, HOWEVER, AND DESPITE OUR BEST EFFORTS NO FORECASTING SYSTEM WILL BE 100 PERCENT ACCURATE. FOR EXAMPLE, A STUDY OF MODERATE AND HIGH DEMAND ITEMS AT OUR AVIATION INVENTORY CONTROL POINT REVEALED THAT APPROXIMATELY 70 PERCENT EXPERIENCED DEMAND FLUCTUATIONS IN EXCESS OF 25 PERCENT FROM ONE YEAR TO THE NEXT. WHEN REQUIREMENTS FOR AN ITEM INCREASE, THE RISK OF RUNNING OUT OF STOCK MAY CAUSE US TO BUY MORE. WE ARE EQUALLY ATTUNED TO THE RISKS OF OVERBUYING WHEN REQUIREMENTS ARE REDUCED. WE HAVE PLACED A HEAVY EMPHASIS ON REDUCING OR CANCELLING PROCUREMENTS BEFORE THEY BECOME SIGNED CONTRACTS, AND WE HAVE AGGRESSIVELY PURSUED TERMINATIONS WHEN ECONOMICAL TO DO SO AFTER CONTRACT AWARD.

TO MEASURE THIS, WE TAKE SNAPSHOTS OF THE INVENTORY ON ORDER AS PART OF THE SEMIANNUAL STRATIFICATION PROCESS. IN THE LAST YEAR WE HAVE REDUCED THE VALUE OF LONG SUPPLY ITEMS ON ORDER BY 59 PERCENT, OR

ALMOST $470 MILLION. IN SOME CASES IT IS STILL LESS EXPENSIVE FOR THE GOVERNMENT TO ALLOW SOME ITEMS TO DELIVER RATHER THAN TO TERMINATE, PAY THE TERMINATION FEES, AND THEN REPROCURE THE SAME SPARES NEXT YEAR. A SAMPLE DONE AT OUR AVIATION SUPPLY OFFICE OF THEIR TOP 50 LINE ITEMS WITH DUE IN LONG SUPPLY IN 1984 REVEALED THAT 85 PERCENT OF THE LONG SUPPLY HAD BECOME APPLICABLE WITHIN FOUR YEARS.

REQUIREMENTS SOMETIMES CHANGE BETWEEN THE TIME A PURCHASE REQUEST IS INITIATED AND THE AWARD OF A CONTRACT. THIS LAST YEAR, WE HAVE HALVED THE AMOUNT OF LONG SUPPLY IDENTIFIED DURING THIS PERIOD FROM OVER $160M TO LESS THAN $80M. WE HAVE MADE PROGRESS. WE WILL NOT REACH ZERO. THE VERY NATURE OF THE SNAPSHOT IS TO HIGHLIGHT PROCUREMENTS THAT ARE IN NEED OF REVIEW. WE WILL CONTINUE TO IMPROVE OUR PROCESS BY MAKING THE BEST REQUIREMENTS PROJECTION WE CAN UP FRONT, THEN RAPIDLY RESPOND TO CHANGES AS THEY OCCUR.

IN THIS REGARD, WE HAVE DEVELOPED AND ARE IMPLEMENTING A COMPUTERIZED TERMINATION COST MODEL WHICH GREATLY ENHANCES THE ABILITY OF AN ITEM MANAGER TO PROJECT SAVINGS FROM TERMINATING PART OR ALL OF A CONTRACT. THE VALUE OF TERMINATIONS PROCESSED IN FY 1989 WAS OVER $200 MILLION, ALMOST DOUBLE FROM 1988. AT OUR SHIPS PARTS CONTROL CENTER, 44 PERCENT OF THE TERMINATION NOMINATIONS GENERATED BY THE COMPUTER NOW RESULT IN CONTRACT MODIFICATIONS OR STOP WORK ORDERS TO CONTRACTORS.

PROCUREMENT

THE NEXT AREA I WOULD LIKE TO DISCUSS IS THE ACTUAL PROCUREMENT OF SPARES. ONE OF THE BIGGEST CHALLENGES IN OUR SYSTEM IS REDUCING LONG

PROCUREMENT LEAD TIMES. THE TYPICAL TWO YEAR LEAD TIME EXACERBATES THE PROBLEMS OF ACCURATELY FORECASTING DEMAND, THEREBY INCREASING THE POSSIBILITIES OF OVERBUYING OR UNDERBUYING. WE HAVE TAKEN A NUMBER OF INITIATIVES TO REDUCE BOTH THE ADMINISTRATIVE AND THE PRODUCTION PORTIONS OF LEAD TIME. FROM OUR 1987 BASELINE TO DATE, LEAD TIMES HAVE BEEN REDUCED ALMOST 20 PERCENT.

ADMINISTRATIVE PROCESSES CONTRIBUTING TO LEAD TIME HAVE BEEN REVIEWED WITH A NUMBER OF BOTTLENECKS ELIMINATED AND INEFFICIENT PROCEDURES REVISED. OUR ADP MODERNIZATION EFFORTS WILL PROVIDE THE CAPABILITY TO COLLECT AND RAPIDLY PRODUCE THE EXTENSIVE TECHNICAL DATA PACKAGES THAT ARE USED FOR COMPETITIVE SOLICITATION. IN ADDITION, WE HAVE IMPLEMENTED AT OUR INVENTORY CONTROL POINTS A STATE-OF-THE-ART PROCUREMENT SYSTEM FOR SMALL PURCHASE AND WILL SOON EXTEND THIS TO LARGE BUYS.

LIKE PRIVATE INDUSTRY, WE HAVE BEEN PURSUING THE USE OF MORE FLEXIBLE CONTRACTING VEHICLES, SUCH AS INDEFINITE DELIVERY AND INDEFINITE QUANTITY TYPE CONTRACTS AND MULTIPLE YEAR CONTRACTS--VEHICLES THAT WILL FACILITATE PLACING ORDERS WITH SHORTER LEAD TIMES.

PRODUCTION LEAD TIME REDUCTIONS ARE NOW BEING ROUTINELY SOLICITED FROM VENDORS AND SIGNIFICANT REDUCTIONS IN PRODUCTION LEAD TIME ARE BEING ACHIEVED. IN ADDITION, WE ARE INVESTIGATING THE POSSIBILITIES OF PROCURING THE CASTINGS AND FORGINGS NEEDED IN THE ASSEMBLY OF SOME OF OUR EXTREMELY LONG LEAD TIME ITEMS. THIS WOULD ENABLE US TO SIGNIFICANTLY REDUCE THE PRODUCTION LEAD TIME OF THE END ITEM WITH A RELATIVELY SMALL UP-FRONT INVESTMENT.

SPARE PARTS PRICES WERE A SIGNIFICANT CONCERN EARLIER THIS DECADE, WHEN THEY HELPED BRING ABOUT THE COMPETITION IN CONTRACTING ACT AND

THE REDUCTION IN THE USE OF UNPRICED ORDERS. THESE INITIATIVES HAVE BEEN SUCCESSFUL IN REDUCING PRICES FOR MANY ITEMS. SINCE 1986, PROCUREMENT INITIATIVES, INCLUDING THE NAVY "BUY OUR SPARES SMART" PROGRAM, HAVE REDUCED BY 21 PERCENT THE COSTS TO OUR CUSTOMERS OF MATERIAL IN THE NAVY STOCK FUND. HOWEVER, IMPLEMENTATION OF THESE INITIATIVES LED TO AN INCREASE IN ADMINISTRATIVE LEAD TIMES.

ALSO IN THE PAST DECADE, WE INCREASED ORDER QUANTITY SIZE FOR SOME ITEMS IN THE BELIEF LARGER ORDERS WOULD MAKE THE PROCUREMENT PROCESS MORE EFFICIENT BY EITHER INDUCING MORE COMPETITION, OR BY FACILITATING LOWER UNIT PRICES. WE CAN NO LONGER AFFORD TO BUY THESE INCREASED ORDER SIZES AND WE HAVE REDUCED ORDER QUANTITIES TO MINIMUM ECONOMIC ORDER QUANTITIES.

FAIR SPARE PART PRICING CONTINUES TO BE A TOP NAVY PRIORITY. THE DEFENSE MANAGEMENT REVIEW, WHICH I DISCUSS LATER, INCORPORATES A NUMBER OF INITIATIVES DESIGNED TO HELP MEET THIS CHALLENGE, SUCH AS THE ABILITY TO PAY FOR TECHNICAL DATA AND DRAWINGS FROM THE STOCK FUND IN ORDER TO FOSTER COMPETITION.

ON HAND INVENTORY

ONCE SPARES ARE ON HAND, WE ARE EXTREMELY CONCERNED WITH OUR INVENTORY ACCURACY, VISIBILITY, AND VALUATION. WE HAVE HAD AN ONGOING PROGRAM SINCE 1981 TO IMPROVE OUR INVENTORY ACCURACY. IT IS A CRITICAL ELEMENT IN OUR BUSINESS PLANS AND IS CONTINUALLY MONITORED FOR EACH OF OUR SUPPLY DEPOTS. I CHAIR SEMIANNUAL FLAG-LEVEL CONFERENCES TO MONITOR OUR PROGRESS AND TO IDENTIFY AREAS NEEDING IMPROVEMENT. INVENTORY ACCURACY REQUIRES CONSTANT VIGILANCE, AND WE

ARE MAKING THAT COMMITMENT. AN INTELLIGENTLY EXECUTED DISPOSAL PROGRAM WILL FACILITATE INVENTORY ACCURACY BY REDUCING OVER-CROWDING IN OUR WAREHOUSES.

WE ARE INCREASING INVENTORY VISIBILITY BY UTILIZING CAPABILITIES INHERENT IN OUR LOGISTICS DATA NETWORKS TO MAKE INFORMATION ABOUT SPARES ON HAND AVAILABLE TO MORE PEOPLE. EARLIER THIS YEAR, THE NAVY AND THE DEFENSE LOGISTICS AGENCY BUILT A GATEWAY BETWEEN EXISTING DATA NETWORKS TO ALLOW THE SHARING OF LOGISTICS INFORMATION AND WE ARE NOW DEVELOPING THE MEANS TO PROVIDE OUR INVENTORY ASSET PICTURE TO THEM.

THE PRODUCT OF THIS VISIBILITY IS THE CAPABILITY TO FULLY UTILIZE MATERIAL THAT HAS ALREADY BEEN PROCURED BY THE GOVERNMENT BEFORE BUYING MORE. WE STRONGLY SUPPORT THE DOD EFFORTS TO DEVELOP COMPLETE INTERSERVICE DISTRIBUTION OF LONG SUPPLY AND EXCESS SPARES. IN THE INTERIM, WE HAVE EXPANDED THE NAVY'S INTRA-SERVICE REDISTRIBUTION PROGRAM, WHICH ENABLED US TO REDISTRIBUTE NEARLY $12 MILLION LAST YEAR AND WHICH SHOULD NET OVER $20 MILLION IN REDISTRIBUTIONS THIS YEAR.

WE ARE COMMITTED TO IMPROVING THE VISIBILITY OF SPARES IN THE HANDS OF CONTRACTORS. TO THIS END, WE HAVE DEVELOPED SYSTEMS THAT PROVIDE VISIBILITY OF BOTH CONTRACTOR REQUIREMENTS AND ASSETS SO EXCESSES CAN BE BETTER IDENTIFIED AND UTILIZED. THESE SYSTEMS ARE NOW BEING IMPLEMENTED. BY THE END OF 1992, 93 PERCENT OF GOVERNMENT FURNISHED MATERIAL PROVIDED TO CONTRACTORS BY THE NAVY WILL BE VISIBLE.

WE NEED TO CHANGE OUR RULES FOR INVENTORY VALUATION. OUR INVENTORY VALUE NEEDS TO REFLECT THE LOWER OF COST OR CURRENT MARKET PRICE AND ADDRESS THE VALUATION OF NOT-READY-FOR-ISSUE REPAIRABLES. AS THE GAO POINTED OUT IN THEIR AUDIT OF THE AIR FORCE ACCOUNTING SYSTEMS, THERE IS A NEED TO REFLECT THE TRUE VALUE FOR UNITS IN NEED OF REPAIR. WE

WILL WORK TO RESOLVE DIFFERENCES BETWEEN OUR CURRENT SYSTEM, WHICH IS ORIENTED TOWARD SALES OF ITEMS TO CUSTOMERS, AND THE NEED FOR MORE ACCURATE ACCOUNTING VALUATION OF SPARES.

SPARES AT THE END OF THEIR LIFE CYCLE

IN THE BEGINNING OF MY STATEMENT, I DISCUSSED OUR LONG SUPPLY INVENTORY IN SOME DETAIL. I WOULD LIKE TO RETURN TO THAT BRIEFLY IN DISCUSSING WHAT WE DO WITH SPARES WHEN OUR REQUIREMENTS FOR THEM DIMINISH.

REPAIRABLE ITEMS, BY THEIR VERY NATURE, ARE NOT CONSUMED IN USE. OVER 72 PERCENT OF THE DOLLARS INVESTED IN OUR SPARE PARTS INVENTORY ARE IN REPAIRABLES. THUS, EVEN IF PERFECT DEMAND FORECASTING SYSTEMS WERE AVAILABLE, WE WOULD STILL HAVE TO DEAL WITH REPAIRABLE ITEMS AFTER THEIR ERA OF USEFULNESS HAS PASSED, AND THEY HAVE BEEN REPLACED BY MODERNIZED SYSTEM SPARES. ALTHOUGH THE NAVY THEN NO LONGER NEEDS THESE SPARES, OTHER NATIONS USE THESE WEAPON SYSTEMS AND MAY HAVE A USE FOR THE RELATED SPARES. TO THIS END, WE HAVE DEVELOPED AN AGGRESSIVE FOREIGN MILITARY SALES (FMS) MARKETING PROPOSAL. WE HAVE CREATED LISTS OF EXCESS ITEMS AND ARE CONTACTING OUR CUSTOMERS, WITH THE INTENT OF GENERATING SALES. IF NOT SOLD WITHIN A REASONABLE TIME, WE WILL DISPOSE OF THE UNNEEDED SPARES.

ONE AREA WE NEED TO IMPROVE IS INACTIVE ITEM REDUCTION. CURRENTLY, THERE ARE RESTRICTIVE CRITERIA THAT IDENTIFY WHEN ITEMS SHOULD BE PURGED FROM OUR RECORDS AT THE END OF THEIR USEFUL LIFE. IN THEIR "GROWTH IN SHIP AND SUBMARINE PARTS" AUDIT, THE GAO POINTED OUT THAT

WE HAVE ITEMS THAT SHOULD BE CLEANED OFF OUR BOOKS. WE WILL EVALUATE THIS PROGRAM THIS YEAR, DETERMINE WHAT IS NEEDED TO IMPROVE IT, AND TAKE NECESSARY STEPS TO DO SO.

INVENTORY MANAGEMENT ENVIRONMENT

THIS LAST TOPIC IS PERHAPS THE MOST IMPORTANT, BECAUSE IT IS THE FRAMEWORK WITHIN WHICH ALL THE OTHER PROCESSES OPERATE. OUR SUPPLY SYSTEM WORKS WHEN WE HAVE THE RIGHT DATA FOR MAKING DECISIONS, AND THE RIGHT PEOPLE MAKING THOSE DECISIONS. THE CONTINUED DEVELOPMENT AND IMPROVEMENT OF OUR INFORMATION PROCESSING SYSTEMS HAS BEEN A PRIMARY CONCERN FOR THE ENTIRE DECADE OF THE 1980'S AND WE HAVE MADE TREMENDOUS STRIDES. AS WE APPROACH THE 1990'S, THESE SYSTEMS WILL CONTINUE TO BE A PRIORITY. ENHANCED REQUIREMENTS DETERMINATION, EXPEDITED PROCUREMENT PROCESSING, IMPROVED INVENTORY VISIBILITY AND ACCOUNTABILITY, AND REDISTRIBUTION AND REUTILIZATION OF SPARES ALL DEPEND ON GETTING ACCURATE INFORMATION ABOUT WHAT IS AVAILABLE AND WHAT IS NEEDED TO THE DECISION-MAKER IN A TIMELY MANNER. OUR INFORMATION SYSTEM MODERNIZATION EFFORTS ARE ESSENTIAL TO ENSURE THIS HAPPENS.

WHILE AWAITING THE FULL IMPLEMENTATION OF THE MODERNIZED ADP SYSTEMS, OUR PEOPLE HAVE MADE SUBSTANTIAL COMMITMENTS TO IMPROVING OUR INVENTORY MANAGEMENT PROCESSES. OUR ITEM MANAGERS MUST WALK A TIGHT-ROPE; THOUGH IT IS NOT POSSIBLE TO PRECISELY PREDICT NEEDS FOR SPARES TWO YEARS IN ADVANCE, WE CONTINUALLY CHALLENGE THEM TO DO SO. THEY ARE EVALUATED ON MAINTAINING AVAILABILITY OF SPARES, AND ON ELIMINATING PROCUREMENTS FOR SPARES ABOVE WHAT IS NEEDED. WE NEED TO

GIVE ITEM MANAGERS THE BETTER DECISION SUPPORT TOOLS OUR ADP MODERNIZATION EFFORTS WILL PROVIDE, AND WE NEED TO REDUCE LEAD TIMES SO THEIR CRYSTAL BALL DOES NOT HAVE TO VIEW QUITE AS FAR INTO THE FUTURE, ESPECIALLY CONSIDERING THE CHANGES FACING US TODAY. WE ARE COMMITTED TO BOTH THESE EFFORTS.

THE NAVY INITIATIVE TO STOCK FUND REPAIRABLES HAS ACHIEVED SIGNIFICANT CONCRETE RESULTS. SINCE THE STOCK FUNDING OF SHIPS' REPAIRABLES IN 1981 AND AVIATION REPAIRABLES IN 1985, MATERIAL AVAILABILITY HAS IMPROVED, BACKORDERS ARE DOWN, CUSTOMER WAITING TIME HAS BEEN REDUCED, AND CARCASS RETURN RATES ARE UP. THE STOCK FUND HAS PROVIDED INCREASED FLEXIBILITY TO TRADE OFF PROCUREMENT OR REPAIR DOLLARS TO OBTAIN NEEDED SUPPORT AT LEAST COST, HAS CREATED A BUYER-SELLER RELATIONSHIP WHICH HAS FINANCIALLY MOTIVATED THE CUSTOMER TO INCREASE REPAIRABLE RETURNS AND HAS REDUCED OVERALL COSTS, AND HAS DECREASED THE FUNDING LEAD TIME FOR RESPONDING TO EMERGENT REQUIREMENTS.

WHILE ATTEMPTING TO IMPROVE OUR OWN PROCESSES, WE HAVE BEEN COGNIZANT OF THE TREMENDOUS CHANGES THAT HAVE TAKEN PLACE IN INDUSTRY'S MANAGEMENT OF INVENTORY. THERE ARE MANY IDEAS THAT WE NEED TO EXPLOIT. WE HAVE MADE A DEDICATED EFFORT THROUGH THE PRIVATE SECTOR COUNCIL TO KEEP A STEADY FLOW OF 'FRESH IDEAS' COMING INTO OUR DAILY OPERATING PRACTICES. SINCE 1986, THE PRIVATE SECTOR COUNCIL HAS PARTICIPATED WITH US IN THREE MAJOR STUDIES RELATED TO INVENTORY MANAGEMENT. SOME 35 RECOMMENDATIONS IN THIS AREA WERE MADE TO US BY THE COUNCIL AND 28 OF THESE HAVE BEEN IMPLEMENTED OR ARE BEING TESTED. WE ARE ADAPTING THEIR INNOVATIVE EFFORTS TO OUR OPERATING ENVIRONMENT WHEREVER WE CAN.

FINALLY, WE HAVE CONTINUED WITH THE FLAG LEVEL INVENTORY MANAGEMENT IMPROVEMENT PROGRAM, WHICH I CHAIR. THIS PROGRAM MONITORS AND FACILITATES IMPROVEMENTS THROUGH ALL INVENTORY MANAGEMENT FUNCTIONS. IT HAS MANDATED THE COMMAND FOCUS TO IDENTIFY THE PROBLEMS, DETERMINE THE ROOT CAUSES AND DEVELOP THE IMPROVEMENTS NEEDED. WE HAVE MADE SUBSTANTIAL PROGRESS THIS PAST YEAR.

THE DEFENSE MANAGEMENT REVIEW

SECRETARY McMILLAN AND HIS SUPERIORS IN THE DEFENSE DEPARTMENT HAVE ALREADY EXPRESSED THEIR COMMITMENT TO THE DEFENSE MANAGEMENT REVIEW, OR DMR, PROCESS. THE DEPARTMENT OF THE NAVY IS EQUALLY COMMITTED TO THE DMR INITIATIVES AND HAS PROGRAMMED BILLIONS OF DOLLARS IN SAVINGS ACCORDINGLY. ONE OF THE MOST SIGNIFICANT INITIATIVES IS TO REDUCE SUPPLY SYSTEM COSTS--OVER $2.5 BILLION IN SAVINGS ARE PROGRAMMED FOR 1991 THROUGH 1995. THE PRIMARY MEANS AVAILABLE FOR ACHIEVING THESE REDUCTIONS ARE THROUGH REDUCED INVENTORY LEVELS AND IMPROVED INVENTORY MANAGEMENT PRACTICES. BOTH OF THESE AMBITIOUS EFFORTS DIRECTLY SUPPORT THE INTENT OF THIS SUBCOMMITTEE.

WE HAVE BEEN ACTIVELY PARTICIPATING IN A NUMBER OF WORKING GROUPS DESIGNED TO IDENTIFY AND IMPLEMENT FURTHER SAVINGS THROUGH IMPROVED PROCESSES AND CONSOLIDATIONS WHERE POSSIBLE.

THE GENERAL ACCOUNTING OFFICE AND OTHERS HAVE EXPRESSED CONCERN OVER THEIR IMPRESSION THAT A CULTURE EXISTS IN THE PROCUREMENT OF SPARE PARTS WHICH FOSTERS "READINESS AT ANY COST," EVEN IF THAT MEANS BUYING TOO MUCH. WE ARE CONCERNED ABOUT THIS IMPRESSION. TO THE COMMANDING OFFICER OF A FRIGATE IN THE PERSIAN GULF OR AN F-14 PILOT

ON PATROL OVER THE GULF OF SIDRA, READINESS IS, AND HAS TO BE, A NUMBER ONE CONCERN. IT IS OUR JOB AS THE PROFESSIONAL LOGISTICIANS TO PROVIDE THAT READINESS AT THE LOWEST POSSIBLE COST.

WE HAVE MADE GREAT STRIDES IN READINESS THIS PAST DECADE; WE HAVE ALSO MADE GREAT STRIDES IN OUR ABILITY TO REDUCE COSTS IN OUR DEPOT OPERATIONS AND DISTRIBUTION SYSTEM, AND IN THE COST OF THE SPARES WE BUY. WE HAVE REDUCED OUR INVENTORY CONTROL POINT END STRENGTH 19 PERCENT SINCE 1987, AND OUR NAVAL SUPPLY CENTER END STRENGTH 25 PERCENT IN THE SAME PERIOD. OUR COST OF UNIT PRODUCTION IS DOWN 19 PERCENT SINCE WE IMPLEMENTED A PRODUCTIVE UNIT RESOURCING SYSTEM IN 1985. ALL OF THIS HAS BEEN ACCOMPLISHED WITH AN INCREASING NUMBER OF MORE SOPHISTICATED SHIPS AND AIRCRAFT TO SUPPORT, AND WITH IMPROVED INVENTORY ACCURACY AND AVAILABILITY.

THE TREMENDOUS INITIATIVES OF THE DMR AND THE ASSOCIATED SAVINGS WHICH ARE ALREADY REFLECTED IN OUTYEAR FUNDING PROFILES PROVIDE INCENTIVES TO REDUCE SPARES PROCUREMENTS TO THE MINIMUM ESSENTIAL LEVELS. WE HAVE SIGNIFICANTLY REDUCED STOCK FUND OBLIGATIONS THIS YEAR IN ANTICIPATION OF REDUCED SALES IN FISCAL YEAR 1992 AND BEYOND. WE HAVE ANTICIPATED THE REDUCTION OF PRODUCTION LEAD TIMES AND ARE DELAYING THE INITIATION OF PROCUREMENTS ACCORDINGLY; WE ARE REDUCING INVENTORY LEVELS, AND WE ARE USING MINIMUM ORDER QUANTITIES. THE DMR SAVINGS GOALS ARE AMBITIOUS AND WILL CHALLENGE US TO THE EXTREME.

SUMMARY

IN SUMMARY, I WANT TO REITERATE SEVERAL KEY POINTS. FIRST, OUR LONG SUPPLY OR UNNEEDED INVENTORY IS LARGELY THE RESULT OF RETAINING

SPARES FOR WEAPON SYSTEMS AFTER THEY HAVE BEEN REPLACED OR MODERNIZED. AS I PREVIOUSLY MENTIONED, A SUBSTANTIVE PORTION OF THE MATERIAL WAS NEVER BOUGHT AS SPARES. WE ARE MOVING OUT AGGRESSIVELY TO IDENTIFY AND ELIMINATE THESE SPARES FROM OUR WAREHOUSES UNLESS NEEDED FOR CONTINGENCY PURPOSES.

NEXT, WE HAVE MADE MANY IMPROVEMENTS TO OUR INVENTORY MANAGEMENT PROCESSES THAT ARE SHOWING CONCRETE RESULTS. WE TAKE OUR ROLES AS STEWARDS OF TAXPAYER DOLLARS VERY SERIOUSLY--IT IS OUR PROFESSION, AND OUR DUTY IN SERVICE OF OUR COUNTRY. AS WE IMPLEMENT THE DEFENSE MANAGEMENT REVIEW INITIATIVES, WE WILL CONTINUE THESE IMPROVEMENTS.

LAST, WE ARE TREADING ON A TIGHT ROPE ON A MUCH HIGHER LEVEL THAN THAT OF THE ITEM MANAGER I MENTIONED EARLIER. WE ARE BEING PUSHED AND CHALLENGED TO PERFORM AT LOWER COST, AT FEWER ACTIVITIES, AND WITH FEWER RESOURCES. IN MEETING THIS CHALLENGE, WE WILL CAREFULLY MONITOR FLEET READINESS, BECAUSE IT WAS THIS READINESS THAT HELPED ACHIEVE THE REVOLUTIONARY CHANGES TAKING PLACE IN THE WORLD TODAY.

MR. CHAIRMAN, THIS CONCLUDES MY PREPARED STATEMENT. THANK YOU FOR THE OPPORTUNITY TO ADDRESS THE SUBCOMMITTEE. I WOULD BE PLEASED TO RESPOND TO ANY QUESTIONS YOU MAY HAVE.

STATEMENT OF MAJOR GENERAL EDWARD R. BRACKEN

Mr Chairman and Members of the Committee:

I appreciate the opportunity to provide this Committee with some insight into Air Force spares management. This hearing is very timely for three reasons. First, it closely follows the recent wide-spread media criticism of DOD and Air Force spares inventory management fueled largely by the recent Senate Budget Committee and GAO's Air Force Financial Management reports. Second, this hearing comes at a time when we have made some significant changes in the way we compute requirements, fund, and manage the largest segment of our inventory principally as a result of the Defense Management Review. Third, events taking place in the USSR and Eastern Europe make it necessary to consider future spares requirements in light of overall defense reductions.

In terms of magnitude the Air Force manages more than 900,000 items of spare parts, spare engines and support equipment which is valued at approximately $63 billion. Seventy-three percent or $45 billion of this comprises our secondary item inventory, more commonly referred to as spare parts. This is the principal focus of this hearing today. The value of the spares inventory has grown significantly from $19 billion in FY 80 to $45 billion in FY 89. The reasons for this growth are really straight forward -- modernization (both new weapon systems procurement and modification); a conscious commitment to improve readiness and sustainability; changes to retention policy that result in holding more inventory longer; and price escalation. No one can doubt that the results of the investment of the last ten years has produced dramatic improvements in readiness and sustainability . For example, Air Force mission capability rates have increased 20% since FY 80 and our ability to support wartime tactical sorties has improved by 42% since FY 81.

What is in doubt by members of Congress, the media, and the general public is the wisdom of how we spent the taxpayers dollars to achieve these results. The general perception created by the recent series of audit reports is one of apparently incompetent bureaucrats squandering the taxpayers money on overpriced parts in an attempt to crowd ever increasing amounts of useless material into already bulging warehouses. The principal evidence attesting to this scenario is the growth in our "excess" inventory. Whether intentional or accidental, various auditors and other critics continue to inappropriately portray DOD and Air Force inventory data. The facts simply do not support the general perception created by these reports.

As we compute our requirements and assess our inventory, we segregrate our inventory into two parts -- that which will be needed to cover a given set of demands within the reprocurement leadtime of the item plus two years of use (typically a four year period) and that which is not required within that narrow window (considering that we tend to keep our equipment 20+ years). In our admittedly sometimes obscure "supplyese" we term any spare falling within that usage window as "applicable" (to that given set of demands), and any spare not required within that window as "inapplicable" or "long supply". By definition, long supply does not mean that the item is excess, only that it is not needed within the defined operating period. Each item that falls into the long supply category is reviewed and a determination made as to the necessity to retain the item based on potential use. Only if there is no foreseeable use do we identify the item as true "excess". The real confusion is caused by those who label all long supply as excess when it clearly is not.

Inapplicable inventory or long supply has indeed grown from $4 billion in FY 80 to $13 billion in FY 89, but the ratio of the value of the end item equipment being supported (e.g. the aircraft, missiles, etc) to the value of the spares inventory supporting the end items is the same now as it was in FY 80. The same factors that drive overall inventory have also driven long supply.

Force modernization is a major driver. For example, since FY 80 we have added and subtracted over 3,000 fighters. This has radically altered both the force mix and the mix of parts needed to support the forces. In addition, we have spent over $23.5 billion since FY 80 updating and modifying our aircraft inventory and thus driving additional changes in the mix of parts needed to support the weapon systems. The simple fact is that in general you can't use F-106 and F-4 parts to support F-15s and F-16s or analog computing devices to support digital computers. Most of our long supply inventory is related to older systems such as the B-52, F-4, etc.

Compounding this turnover of equipment and inventory is the mid-1980s decision to tighten up the DOD disposal criteria in response to pressures to prevent unnecessary disposal and also to buildup readiness and sustainability. Essentially, we now keep all of the residual inventory of a weapon system regardless of the population of active aircraft. Effectively this means that we keep more older parts longer particularly on weapon systems phasing out of the inventory. The net effect of adding new inventory while keeping the older inventory has driven the increases of total inventory values and the value of long supply. We estimate that 40% of our long supply assets are being retained as a result of this policy. The impression that we are "excessing" new parts is inaccurate. Over 60% of our long supply is unserviceable assets which have been and may again be used many times (assets are maintained as unserviceable until they are required). DOD has recently changed this policy to allow us to scale down inventory in relation to the phase-out of the weapon system it supports.

Price inflation accounts for over 30% of the growth in long supply value. For example, since FY 82 the average cost of an aircraft reparable has grown 37%. As we periodically revalue our inventory, the value of long supply assets also grows.

Modernization, retention policy and inflation are the major reasons that long supply was grown, but there are others. For example, we hold items for some years in anticipation of using them to support our Foreign Military Sales customers long after we discontinue our use of the equipment. A small portion of long supply was intentionally bought in advance of need in order to get quantity discounts, take advantage of short end item production runs/vendor base, and to preclude support shortfalls as vendors go out business. Also some long supply is generated as a result of short-term fluctuations in demand patterns. The overwhelming majority of long supply items either have or will be used in support of valid requirements. As future requirements generate the cost of holding these items is far less than the cost of disposing and then repurchasing them.

Of the total long supply assets, only $1.2 billion are actually excess to need. That is about 3% of total inventory. We believe that is consistent with industry testimony recently received by this committee. These excess items are carefully reviewed and when determined to have no known probable use are processed to disposal.

Many of our critics continue to cite the growth in long supply and the resultant overcrowding of our depot warehouses as impacting factors on our ability to effectively manage and account for our inventories. Our internal Air Force audit reports had previously identified most of the problems cited in various GAO and other reports. We have been working these issues diligently and have successfully improved our processes, corrected many of the weaknesses in our supply systems and implemented stringent controls to assure accuracy and improve visibility and inventory accountability. Even the GAO acknowledged in a 1988 report on Air Force inventory management that accuracy rates have improved. Our after research indicates dollar accuracy is up to 97.5% and our warehouse denial rate is less than 1%; both of which attest to the reliability and effectiveness of the inventory accounting system.

We recognize that crowded warehouse conditions provide additional challenges for our people to effectively process material and that maintenance of inventory has associated costs. In order to help alleviate crowding and reduce operating costs, we have instituted a program to perform monthly inspections of our storage areas to identify bulky items which have been occupying large areas of space over a long period of time. As a result of this effort, we processed almost $600 million worth of items to our disposal facilities and freed up over one million cubic feet of storage space during the past year. This was in addition to our normal disposal actions for more than $500 million last year.

Because our systems compute requirements to accommodate the leadtime necessary to acquire the items, stock must be purchased roughly two years in advance of need based on usage predicted three to four years in the future. This is done for over 830,000 stock numbers on 47 different aircraft types flying over

3 million hours per year. Items for newly developed and acquired aircraft are bought based on engineering and/or contractor estimates of expected failure rates. Forecasting this projected usage is not an exact science. Until actual demands occur, some of the stock may appear in long supply. Changes in requirements are inevitable in our dynamic environment and no matter how factual our initial forecasts may be, there will always be instances when demands do not generate as predicted. When we become aware of these procurement if it makes economic and logistics sense to do so.

We have been criticized by the GAO for not terminating procurement for more items when changes occur in the computation. We have worked this area hard and have made a number of improvements to our process. We have instituted a front-end procedure to relook at the latest requirement just prior to awarding a contract. When items on contract compute as excess, we have a vigorous program to review them for possible contract termination. Our item managers now have a software model to help them make smart economical decisions. Mechanization of our decision process has eliminated many previous inaccuracies in this area.

The amount of potential terminations is beginning to decrease and our percentage of actual contract terminations has improved from 3% in 1985 to 19% in 1989. However, our experience has taught us that the fluctuations that caused the potential termination can also create a need to reprocure the same item within a short time. While the use of the economic decision model has resulted in an increase in terminations, the economics of each individual action cannot be the sole determinate factor. Sound logistics knowledge of the weapon system, the computation system, past item experience, and future plans need to be factored into the equation by the individual item manager.

We have been and continue to focus considerable resources and attention on reducing our overall requirements. We believe that our efforts have paid off. Between FY 82 and FY 90 our aircraft investment spares peacetime operating buy requirement has decreased by 48% in actual dollars and 64% in constant dollars despite the growth in average unit cost and increased flying hours. In addition, we recently reduced FY 89-91 aircraft war reserve requirements 35% due to revised forecasting techniques. These reductions result from a combination of increased reliability; better modeling techniques; improved data accuracy; real world factor testing; and, improved competition and contracting procedures. For example, the recent $700 million per year decrease in FY 90 and 91 aircraft spares requirements is a direct result of the introduction of a new war reserves computation model coupled with real world exercise usage factors and the better than predicted reliability of several new generation engines entering our inventory. The Air Force included over $800 million in FY 91-95 savings in the Defense Management Review attributable to these requirements systems improvements.

In the contracting arena we have been focusing our attention on four areas. First, since FY 83 we have been aggressively pursuing a variety of programs aimed at improving our internal pricing mechanisms and responding to contractor overpricing. Through our voluntary refund program we have collected over $18 million ($1.6 million in FY 89 and $1.3 million to date in FY 90). Second, we have increased competition by 105% since FY 84 to 51% of all dollars awarded. We estimate that this has saved the Air Force over $189 million. Third, we have an aggressive program attacking contractor quality. Our blue ribbon contracting initiative has been a model for the department. Essentially we use this program to give preference to contractors with good quality and delivery records as long as the price differential is within limits. This allows us to reward contractors who make a commitment to quality. Fourth, we have mounted a sustained attack on increased administrative leadtimes that resulted from the passage of various acquisition reforms legislation which began in FY 85. For our largest program (aircraft reparable spares) we estimate overall procurement leadtime has dropped 1.4% reducing requirements by 11.3% while administrative leadtime is down 22.7% reducing requirement by 33%.

The success or failure of our inventory management depends largely on our people and our systems. We have made significant progress over the last few years in modernizing our core wholesale logistics systems that support the spares management process. The Stock Control and Distribution system which manages our warehouses and controls our inventory is in full test now and will be fully operational in FY 91. The Requirements Data Bank which controls the computation of our spares requirements has key segments operational now with full implementation scheduled for FY 94. The Weapon System Management Information System is fully operational providing for near-real time war reserve assessment capability, improved critical item program management, and the new war reserve spares requirements model. The Engineering Data Computer Assisted Retrieval System which contains our engineering drawings and prepares our bid sets for contracting is fully operational although data loading is progressing slowly due to fiscal constraints. The Contract Data Management System which controls the flow from purchase request to contract to delivery tracking is heading for Milestone I revalidation in May 90.

These data systems improvements are the key to helping resolve many of the problems previously discussed. They also hold the key to improving the process and increasing productivity. As we enter the decade of the 1990s and beyond the reduction in our force structure and operating tempo and the fiscal climate will drive us to reduce operating costs of our logistics infrastructure. As a part of the Defense Management Review the Air Force proposed a major streamlining of the command structure and supply operations portions of the Air Force Logistics Command. We intend to reduce about 7,400 additional end strength over and above a 2,500 personnel reduction previously included in our baseline planning. This initiative represents a 15% reduction in manning levels and an annual operating savings of over $200 million per year. The reduction is phased based on attrition through FY 94 with the first 3,400 planned in FY 91.

Over 3,500 of these reductions are directly attributable to the ADP modernization efforts described above. (Over 2,000 of the previously planned 2,500 reduction are also related to ADP modernization.) For this reason it is especially critical that we preserve the pace of our Logistics Management System (LMS) upgrades. In fact the Air Force made a small increase in up front funding to accelerate some of these efforts in order to get the benefits sooner. We need your help to preclude a recurrence of the current ADP reduction and cap into FY 91 that would possibly impede the pace of these efforts. Of equal importance is the need to ensure that the remaining civilian pay funding for supply operations is protected. Erosion of AFLC pay financing in FY 91 will have significant ramifications to Air Force readiness and to our workforce since we are already assuming maximum attrition of our workforce. We simply must avoid the employment roller coaster of the last few years and stabilize the financing while we are making these planned reductions. Toward that goal we ask that you grant the AFLC commander the flexibility that all other Air Force commanders have and need, to deal with non-programmatic reductions.

Also, as a part of the Defense Management Review the DOD and the Air Force are proposing some significant changes in the way we finance and manage reparable spares and stock funds. If properly implemented and financed, these additional changes along with the ongoing initiatives previously addressed will result in significant reductions to spares and supply system operating costs without impacting the readiness and sustainability of our forces. We urge your support of these initiatives.

First, beginning in FY 91 we intend to transfer funding responsibility for procuring and repairing all aircraft, missile, and other depot level reparable replenishment spares from the respective Procurement and Operations and Maintenance accounts to the stock fund. Budget and funding responsibility for these activities will migrate from the centrally managed investment spares and depot maintenance accounts to the stock fund "customer" O&M flying hour or operating budget. This change is being made to align funding responsibility into the hands of the consumer. Given the leadtime to make the necessary system changes the maintenance "customers" won't actually begin paying the bill until FY 92. War reserve materiel will continue to be directly appropriated but from within the stock fund appropriation rather than the procurement accounts. Beginning in FY 94 the Air Force will begin financing initial spares purchases through the stock fund also. The Air Force budget contains expected savings of $207 million in FY 91 and about $1.2 billion through FY 95 resulting from this initiative.

This change has several significant benefits. First, financially induced discipline should make for better user buy and repair decisions resulting in lower overall demands. Second, it provides increased flexibility to the wholesale manager to respond to changing mixes of buy and repair it will improve weapon system cost visibility for management decision making. Finally, it produces a significant one-time deferral of budget authority when you initially substitute stock fund contract authority for direct budget authority.

A recently published report alleged that the Air Force did not support this initiative based on prior Air Force evaluations of this concept. This is categorically false. The Air Force independently came to the conclusion that it desired to adopt this concept based on an internal reevaluation undertaken as part of the Defense Management Review and in fact included the initiative in the original Air Force Defense Management Review submission to the Secretary of Defense. Because of the benefits described above we changed our past position. The Air Force believes that this change is the right move at the right time.

The second set of proposed changes made by the Defense Management Review were eight initiatives aimed at reducing the cost of supply system operations. These included such things as increased use of multiple year contracting, procurement of castings and forgings, more nondevelopmental item procurement, and changes in where we store material. Over time each of these changes will reduce supply system operations costs. From a budget structure standpoint the most significant of these changes is the transfer of a significant portion of the wholesale supply systems cost into the stock fund. This action transfers a significant share of direct central supply O&M financing responsibility to the stock fund. Primarily this is the pay and operating expenses of the item managers and the depot distribution centers. The stock fund will raise the funds to pay these costs of operating through surcharges placed on the price of items sold through the stock fund. Essentially this transfers funding responsibility into the hands of the stock fund customers through the flying and operating hour programs.

The purpose of this action is two fold. First, it makes visible the real cost of managing the item and aligns funding responsibility to the customer or recipient of the service just as a business passes on its cost of operations to its customers. Second, it provides the wholesale manager the visibility over his cost of operations and allows the manager the flexibility to make a range of smart trade-off decisions in managing the total stock fund resulting in greater overall efficiency of operations. As a consequence of the combination of all of the Defense Management Review supply system initiatives, our FY 91 budget contains FY 91 Defense Management Review savings of $64 million and total FY 91-95 savings of $2.1 billion.

We intend to implement this change in FY 91, however, due to the time necessary to implement reparable financing to the customers we chose not to pass the total cost of this conversion along to the customer in FY 91. As a consequence, our FY 91 stock fund appropriation contains a significant increase over FY 90 driven largely by a $888 million appropriation to directly reimburse the stock fund. This is a one-time conversion necessity. In the future the O&M customer accounts will contain the necessary funding. In addition, our FY 91 stock fund appropriation request also increases by $301 million due to the transfer of investment war reserve materiel from the aircraft, missile, and other procurement accounts and $79 million related to repayment of the "M" account for fuels billings. While the increase to the stock fund appropriation measured from FY 90 ($126 million) to FY 91 ($1.3 billion) is significant it is important to note the corresponding decreases of over $2.7 billion in the procurement and O&M budget requests related to this transfer. These funds are absolutely critical to support the readiness and sustainability of the Air Force and to effectively make these management improvements.

The FY 91 "spares" budget is carefully balanced to support the readiness of our forces. As best we can, we have taken into consideration known changes in force structure which are inevitably coming. We know that we are going to be a smaller force but we are committed to keeping it a ready force. Our peacetime spares funding is adequate assuming the expected stock funding benefits occur. Depot repair is adequately financed with backlogs stabilized at or below those reported in the FY 90/91 budget submission. Our shortfalls will continue to be primarily in exchangeable safety levels, engine stockage levels, embedded software, and interim contractor support. While our funding levels are not optimum they will provide adequate support to the forces. Supply operations funding, LMS, and transportation funding are all marginally adequate. The bottomline is that we will continue to support readiness at roughly an equivalent level as FY 89 and 90.

Our budget contains a modest level of financing for sustainability. The $301 million in investment war reserves finance 26.4% of the aircraft and 40.8% of ground system requirements. Consumable war reserve financing of $71 million supports 30.1% of weapon system, medical, fuels, and ration requirements. Given the uncertainty of the future threat, our force structure, and fiscal guidance, we believe that this modest investment is appropriate to the time and circumstances. It provides for our most critical needs without running the risk of procuring unneeded supplies.

There is no question that like any large, complex, and dynamic process and organization that Air Force spares management can be improved. I firmly believe that the facts we've provided clearly demonstrate that general perceptions of mismanagement fostered by recent adverse publicity are significantly over-blown and that we have taken aggressive actions targeted at correcting our acknowledged weaknesses. Taken collectively our ongoing improvements coupled with the Defense Management Review initiatives will make some of the most sweeping changes in our business in many years. We are moving in the right direction and we need your support of our FY 91 budget to keep us on track.

Mr. Chairman, I want to thank you and the distinguished members of the committee for your past support of Air Force readiness and sustainability and for allowing me the opportunity to appear today to tell the Air Force story. I eagerly await your questions.

PROCUREMENT LEAD TIME

Mr. **Murtha**. Tell me the figure, what it would be in the same comparison.

General **Bracken**. The production lead times that we have from the same vendor base that some of the companies talked to you about, we deal with General Motors, the Allison Engine Division, and the times that they give us in terms of the parts that we are buying from them range anywhere from 7 to 240 months. We are talking about a different nature of parts than what General Motors is buying from its vendor chain.

There is another important distinction. The General Motors Corporation controls about 75 percent of their vendor base and they have made arrangements with those vendors in a long-term situation where, in anticipation of future sales, they pass the cost of holding that inventory and providing the long lead capability to produce that stuff, and so in effect the vendor is holding the inventory in his plants vis-a-vis General Motors holding it.

The fact that we are dealing with a complex aircraft part as opposed to a part for an automobile where we are buying limited numbers of a very unique kind of spare part drives the difference in lead time.

In other words, the contractor has established some long-term relations with his vendors, a lot of which he owns.

We don't own those vendors and we have to compete and deal for products that are complex in nature vis-a-vis what the automobile industry is looking for.

Mr. **Murtha**. For instance, for the Air Force, we are talking about 636 days, which is the average lead time it takes in order to get a part. What I am saying is that that has to affect everything you do.

When you see the excesses that we have, obviously if you could get the lead time down, you could substantially reduce the excess, make better estimates of what you need, and reduce the cost.

We have looked back at testimony for four or five years where we have asked these questions and it seems absolutely no progress gets made. We don't see any progress at all and we are asking for suggestions from you about what we can do in order to make sure we reduce the inventory of spares, reduce the fact that we have got this excess. Can't we get rid of it? Is it just something you have to carry? Do you need legislation? We have to improve this. This year we are going to make some dramatic cuts. Is this the area to make those cuts? I don't blame the Members who complain about the services not managing their spares well.

Mr. **McMillan**. I think part of it are statutory bidding practices that can be reduced.

I do think the biggest single money saver is to reduce that lead time and we are working on a long-term comprehensive program to reduce lead time. It will take the help of Congress, and we are going to be asking you to help us with that.

Mr. **Murtha**. Is this part of Mr. Atwood's procurement improvement? Is this spares situation part of that?

Mr. **McMillan**. Yes, sir.

Mr. **Reay**. On the lead time, it is not quite correct that we haven't made any improvement.

I have some figures here showing, for example, the DLA average lead time dropped by 50 days between 1986 and 1989. Air Force dropped by 70 days, and the Navy's dropped by approximately 180 days.

So we have made progress in this area and I think the point that Mr. McMillan made a few minutes ago that needs to be emphasized is we are in 100 percent agreement that major savings can be made if we reduce lead time.

The point that General Bracken and others were making is that there is a difference between a fuel control on an F–18 and a set of tires that General Motors is buying from a company that they probably own in the first place.

Admiral **Moore**. Could I add something to this discussion concerning short- and long-term relationships with contractors? I think this is one of the reasons that studies indicate that private industry is able to achieve some of the savings that they do in lead time.

You may be familiar with the Private Sector Council which was formed as an outgrowth of the Grace Commission. Pro bono executives from private industry volunteer services and provide advice and counsel.

I have had private sector companies in over the last four years on three major inventory management studies. Sears and Ford have been involved, along with numerous other large companies from around the country.

They repeatedly emphasize the importance of long-term relationships with suppliers in order to reduce lead time so that the supplier has some incentive to build inventory or to build the capability to respond rapidly to requirements.

A study conducted by the Logistics Management Institute broke down the contractor lead times and discussed the components of contractors performance and production. I think the significant finding from the study is that 68 percent of procurement lead time was to obtain raw material needed to manufacture the items we require; only 22 percent is for actual production and the rest was in order processing, testing, and shipping. One of our limitations is that we don't have the capability to have the supplier invest in raw material and have it on the shelf. Then we would only have to contract for production of the actual item.

One of Mr. Cheney's Defense Management Review initiatives gives us the capability to put forgings and raw material on the shelves in anticipation of a buy. We must be very careful because of variability of the demands. I think this gets at the major reason why our lead times tend to be so long.

Mr. **Murtha**. I am not sure that, say, a ten percent decrease in lead time is what I would consider real progress. I mean, it sounds like we are talking about ten percent in the last couple of years. Maybe if it is a ten percent decrease in lead time over a number of years, we are making some progress. But if we start from a base of two years, that is unacceptable is what it amounts to.

Mr. Secretary, are we talking about spare parts for trucks, spare parts for vehicles, the normal military? What are we talking about? These figures that we have, what does that mean exactly?

Mr. McMillan. We are talking about all lead times, but I think maybe Admiral Davidson can better answer that.

Admiral Davidson. We do buy the automobile-type parts and I would point out that these lead time statistics are normally dollar-weighted, the average total value of what we buy multiplied by how many days, so it is a value of lead time on a weighted basis.

Now for inexpensive or very common use commercial items, we have tools that result in lead time substantially less than what you see.

For example, in Columbus, Ohio, we have what we call a COPADS program where we buy directly quickly automotive-type parts and directly deliver them to the end user.

Mr. Murtha. What would be the lead time there?

Admiral Davidson. Less than 30 days.

In Richmond, Virginia, we have contracts with Kodak and 3M for common types of films, light bulbs, we call it the POPS program where we have electronic ordering, right to 3M, for example, in Europe and immediate delivery, less than 30 days. On a dollar basis, that is a very small percentage of our business and that is why the dollar-weighted average of our lead time is substantially higher.

A second point is—and I share Admiral Moore's comment—that the key to success is long-term relationships with contractors similar to what I just mentioned with 3M and Kodak. The way to do that is to have a requirement that we can depend on and get long-term minimum and maximum quantity contracts for which we put out orders against those.

We have a major initiative in DLA to do that. We are trying to get it up to 20 percent of the dollar value of our buys this year. However, 60 percent of our inventory have requisitions of one or two per year so it just doesn't lend itself to high-volume contracts. So that is the dilemma that we are working against, but I certainly share the need to reduce procurement lead times.

COST OF PROCUREMENT LEADTIME

Mr. Murtha. What does it cost us? We have a figure here, and it is extremely high. What is the daily procurement lead time cost to the DOD?

Mr. McMillan. Our figure is $10 million.

Mr. Reay. That is correct, as it is in the statement, but there are really two numbers with which we are working. One is the value of a day's worth of lead time in the system. Mr. Davis and I just had a discussion. That number is $40 million.

What we are talking about here in the $10 million is as that lead time fluctuates, the inventory that we have to put on the shelf to protect ourselves against that fluctuation is the $10 million that Mr. McMillan is referring to.

Mr. Murtha. Every day of lead time costs us $10 million?

Mr. Reay. Yes, sir. That is correct—inventory on the shelf in the form of safety levels.

The other part of that equation is what we have to put, the amount of material we have on order for the total number of days, the value of that divided by the number of days. That is where you get the $40 million.

Mr. **Murtha**. So if you take $40 million and decrease the days by 100 days, you are talking about $4 billion savings? Is that accurate?

Mr. **Reay**. No, it would be a reduction in future on-orders. I don't want to say savings because that implies that we can somehow take that out of the budget.

Mr. **Murtha**. What can you do to reduce lead time?

Mr. **Reay**. You need to save obligation authority. Lead time is an on-order requirement. To the extent you reduced lead time based on the $10 million, that part you would save in safety levels, but that is a subset of the total cost of lead time. Lead time has two elements of cost. One is the actual material that you have on order. The other is the material you have in the inventory to cover unforeseen changes in that lead time.

COMPETITION

Mr. **Murtha**. One of the things that industry representatives said is that competition is not always the answer in getting spares and it sounds like you are saying the same thing. In some cases you need a stable environment where you order continually from the same person, they know you are going to order it so you are able to get this over an extended period of time.

How often is competition good? If it isn't good, is there something we need to do in order to give you flexibility to buy sole source in some cases, or what do we do?

Mr. **McMillan**. I think that we need more flexibility than we have in the law.

Mr. **Murtha**. Secretary Atwood believes much of this can be changed without legislation and we haven't had any bill up here making any recommendations that I know of—maybe the Armed Services Committee has. We haven't seen any recommendations.

Mr. **McMillan**. We are going to work on that, Mr. Chairman, and I personally had the feeling—I am not completely convinced after eight days here—but I had the feeling that there are a lot of administrative things that can be done and I am working with some intensity on that particular problem.

Right now, the current law requires us to have full competitive bidding on 25,000 items, which means that you really couldn't buy two pick-ups in one order, which seems to me particularly restrictive and there are some other things. Sometimes full competition, so-called, in my opinion end up being, there are some people that won't bid because the rules are so arduous. So I think we need to look at both the statutes and the regulations. One of the first things that I did when I got here, was to begin discussions on that problem and I fully intend to spend some more intense time, on that issue.

Mr. **Murtha**. Well, I will tell you, Mr. Secretary, we are going to take a personal interest in this subject for the rest of the year and we are going to be asking you to come up more than once, because we have had several areas, we have gotten into ADP, into medical services last year, and we have seen a vast improvement. We got involved in the advanced fighter, no question about it there was a substantial improvement once we got involved in it.

We are taking a personal interest. We took an interest before, but we had too many things we were involved in. We are going to take a personal interest in this spares issue and we are going to help you.

Mr. McMILLAN. I welcome that help. I think that will be very helpful.

Mr. MURTHA. Mr. McDade.

RAPID ACQUISITION OF MANUFACTURED PARTS

Mr. McDADE. Thank you, Mr. Chairman.

Let me begin by welcoming all of you here. I see a lot of familiar faces. We have every confidence that if anybody can get the job done in a better way, you people can do it and of course we have to do that.

I notice that in some of the initiatives you include a series of items, one of which I was questioning the industrial witnesses about.

In your statement, when you are talking about reducing lead time, you say a follow-on joint Department of Defense industry task force is identifying specific implementation actions to reduce lead time. That is the one that you are just referring to, the Department of Defense industry cooperative effort to try to determine how to do this better.

Other initiatives include better automation tools for the procurement process. I talked to the Navy about what you are doing in the Charleston area.

Admiral MOORE. Yes sir, Charleston.

Mr. McDADE. We also heard that the Boeing people are involved in an almost comparable situation where they have to supply parts worldwide, a wide variety of problems. How much can you save in inventory costs by having a system using smart tools produce items that are going to come up in requirements?

Admiral MOORE. That is called Rapid Acquisition of Manufactured Parts. This is the Charleston initiative. We are the lead service in this technology. This project involves more than just the government. We intend to transition the technology into private industry as well.

Mr. McDADE. We had a witness saying Boeing is already doing it.

Admiral MOORE. Several are. The General Motors witness mentioned that they had a similar project underway also.

Mr. McDADE. I didn't know that GM was already into it. I had a company in my district that had products lasting as long as some of the ships and didn't anticipate that. They had to set up a special worldwide parts center. Now you have the opportunity to do smart tooling, no blueprints, put everything in and cut a piece of material out. What are the implications of that in terms of this overall cost carrying all this inventory for so many items for so long?

My recollection of the testimony was that you were very close to getting it up and going?

Admiral MOORE. We have completed the system test on one of the so-called cells, the small manufactured part cell. The test was completed in February. We are going into a production test phase and have the first three activities coming on line within the next 18 to 24 months.

But the question that I think you are asking is, what are the implications? Our goal is to reduce procurement lead time from 300 to 700 days to 30 to 60 days.

Mr. McDade. Let's discuss that, because it is such a significant impact. If you are able to do this, can you describe what impacts would occur, in your judgment, in terms of dollar requirements for stocking inventory. If you are able to do this, and cut down that procurement time, that means you don't have to stock them, that means you can punch them out. How many items would you be able to take off a critical list or whatever you use, or maybe this would stay on a critical list for an older system. Express it to us in terms of savings, as the Chairman has rightly indicated that we are going to be under tremendous pressure about that.

Admiral Moore. First of all, we are not going to be able to use ramp technology for the bulk of things that are today in our inventory. The costs would be prohibitive to backfit because this technology relies on the input of the technical and manufacturing data in a digital form largely from the manufacturer.

One of the big challenges is to get the proper standard between industry and government so that the transmission of the data is done economically and efficiently. Our goal is to put this system in place for our prospective programs, for example, our SEAWOLF attack submarine. We anticipate getting data produced in digital format for new systems.

Mr. McDade. I can't understand why you can't backfit it.

Admiral Moore. We think it would be economically prohibitive to do so. We will look at it. We have millions of drawings for millions of parts and we would have to digitalize the part specifications within the proper standard. I suspect there will be a percentage of those where it makes some economic sense to do so, but there will be larger percentage where it doesn't.

INVESTMENT AND CONSUMABLE SPARES

Mr. McDade. We had testimony that the amount of inapplicable inventory is in the neighborhood of $30 billion. There hasn't been a call for two years.

Admiral Moore. No sir. This is inventory that we don't require for the next two years. This implies that it has never been used. In most cases, it has been previously used, and for various reasons we still are carrying it on the books.

Mr. McDade. What I am trying to do is to put a dollar——

Admiral Moore. I know you are sir.

Mr. McDade. Investment dollar into what you are talking about. We got sidetracked in the sense of saying we can't backfit. Take it prospectively.

Admiral Moore. Let's say that today we are buying at our inventory control points about $2.5 billion worth of inventory for purposes of projected demand. This isn't going to change by this technology. What is going to change is the time that it takes us to get the inventory on hand, which includes the safety levels that we build to protect us against stockout. Safety level is what we will be able to reduce as a result of an initiative like this.

Mr. **McDade**. Is that $2.5 billion a Navy figure only?

Admiral **Moore**. Yes sir.

Mr. **McDade**. What would be comparable figures for the Army and the Air Force?

General **Murray**. I don't have a comparable figure.

Admiral **Moore**. These are consumables and repairables bought at Navy inventory control points in fiscal year 1990.

General **Bracken**. For the Air Force in fiscal year 1990 we will buy about $2 billion worth of investment spares, spares that you can repair. I don't have the number on the consumable spares, the spares that have no repair capability, but we can provide that for the record.

[The information follows:]

In fiscal year 1990, the Army plans to purchase $1.257 billion of repairable spares and $1.387 billion of consumable repair parts.

For fiscal year 1990, the Air Force will buy about $700 million of weapon systems spares and material which are not repairable at depot level (in other words repairable at field level only or consumed in use).

Mr. **McDade**. I am trying to get an idea of the breadth of annual purchases required and how this can impact on the requirement to stock spares over a given period of time.

Admiral **Moore**. I am trying to do an analysis on the fly. Maybe it would be better to take the question for the record.

Mr. **McDade**. Do it both ways. We ask you to look at it together because we are going to be at this for a long time and we want to work together to figure out how to work it and if we need to invest a couple of dollars to save a lot, we would be willing to do that.

Mr. **Reay**. Maybe just to look at a total Department of Defense number for I think what you are trying to get your base line, Department of Defense totally spends right around between $19 and $20 billion a year for the sum total of the repairable spares, repair type items, and the hardware consumable items annually. This includes all material in various categories and accounts in the 1991 budget. We can add to that and I do this for reference purposes, about another $18 billion total for the soft goods, the fuel, clothing, medical and subsistence, so we can back down to the $19 and $20 billion level as the total expenditures in all budget accounts including local purchases in the Operations and Maintenance accounts.

Mr. **McDade**. Okay. Admiral, say that is the universe, tell us how you can impact that?

Admiral **Moore**. In buying that universe we are buying projected demand. That is unaffected by how long it takes to get the material. What is affected is the safety level of stock that we must maintain. Say that it is taking us 400 days to buy this inventory. You have to reduce eight days of your procurement lead time to reduce one day of your safety level. Let's make it easy for math purposes and say that the procurement lead time is 400 days. Procurement lead time divided by 18 days would be 50 days worth of safety level that would no longer be required I need some number for safety level which I don't have in my head.

If we took the 50 days worth of safety level that would no longer be required and if we took the $10 million we were talking about earlier, I guess that would be a $500 million reduction in safety level, but I am not sure I made that translation right. You agreed that my answer was "on the fly."

Mr. McDADE. I don't want to force you to make a snap decision because what we are talking about is very important. I would like you to give us jointly a good response for the record and if you would go back now to the backfit.

[The information follows:]

The RAMP Project emphasizes the application of computer integrated manufacturing and acquisition technology in support of low volume, high mix production of spare parts. Essentially, RAMP targets a "parts on demand" production capability. RAMP program objectives include:

Manufacture difficult to obtain parts critical to fleet support operations in a responsive, cost effective and automated manner,

Reduce current total average production leadtimes from 300-700 days to 30-60 days, and

Transfer RAMP Technology to U.S. Industrial base to provide capability for Just-In-Time support of DoD requirements.

Our initial prototypes will be installed at Navy depot activities to modernize their shop capabilities, as well as provide a capability to manufacture critical spares when industry sources are not available or leadtimes are excessive. Although the prototype shop equipment targets a small part range relative to the total Navy inventory, the RAMP architecture and concept can apply to the total Navy inventory. The two prototype commodities to be manufactured are Small Mechanical Parts and Printed Wiring Assemblies as follows:

	Range	Throughput
Small Machined Parts (SMP) (2 Cells)	6,000	30,000/year.
Printed Wiring Assemblies (PWA)	3,000	15,000/year.

Initial Navy installations are scheduled as follows:

Naval Aviation Depot, Cherry Point	SMP Cell by Sep 1991.
Naval Avionics Center, Indianapolis	PWA Cell by Mar 1992.
Naval Shipyard, Charleston	SMP Cell by Sep 1993.

The key to the RAMP system is the use of a next generation technical product standard currently being coordinated with industry by the National Institute of Standards and Technology (NIST). This new standard, Product Data Exchange Specification (PDES), is a critical factor in being able to communicate technical data information for a wide range of parts between the various computer hardware and software used in industry and government today. PDES goes beyond current U.S. standards in that it will enable clear unambiguous transfer of product information that is capable of automatic interpretation by the computer, as well as human interpretation. PDES enables RAMP to significantly reduce manufacturing lead times and increase quality production of spares. The PDES effort is fully supported by industry as a mechanism for making the industrial base competitive. RAMP is the first Flexible Computer Integrated Manufacturing (FCIM) system to use the emerging PDES standard.

Safety Levels: The lead times associated with obtaining spare parts acquisition has a direct relationship with the safety stock levels and war reserves. The conversion of current technical data to a Product Data Exchange Standard (PDES) format will facilitate the use of current state of the art computer integrated manufacturing technology such as that currently being used in the RAMP program to significantly reduce procurement lead times. The reduction in lead time from 300 days to 30 days will allow safety stock levels to be reduced and will result in substantial cost savings. The conversion will also result in a more responsive parts support system and avoid parts obsolescence.

Potential savings in Safety Level stock by investing in conversion of a variety range of parts to PDES files has been calculated based on the limited commodity range available in the RAMP prototypes which will be delivered to Navy industrial activities.

[In millions of dollars]

	Fiscal year—				
	1990	1991	1992	1993	1994
Projected Savings	1.0	3.5	27.2	34.7	34.7
PDES Conversion Costs	2.2	11.7	28.0	3.8	3.8
Net Savings	(1.2)	(8.2)	(.8)	30.9	30.9

NOTE: The analysis of potential savings is based on the assumption that implementation of the current Strategic Plan for the Rapid Acquisition of Manufactured Parts (RAMP) will occur as scheduled and funds are available for the development of PDES technical data packages to fully workload and planned RAMP sites.

The largest impact of RAMP will occur when the PDES standard matures, weapon system technical data is acquired in PDES format and the U.S. industrial base moves to RAMP-like manufacturing. This allows the DoD Inventory and Program Managers to plan spares levels around reduced leadtimes. The Department of Commerce and the Navy are jointly promoting rapid deployment of FCIM and PDES as a National priority. In the interim, Navy will update leadtime databases at the Inventory Control Points as items are transitioned for RAMP-like production in industry. Thus, the Navy spares budgets will automatically incorporate RAMP impact on leadtimes, resulting in lower inventory levels and lower costs to support the fleet spares requirements.

INVENTORY MANAGEMENT INITIATIVES

Mr. McDADE. What is the big problem there?

Admiral MOORE. I think it is a matter of economics. I think we will find that the cost of backfitting ramp technology to parts for older systems is cost prohibitive.

Mr. McDADE. Of translating all the materials into digitalized form——

Admiral MOORE. Probable savings from reduced safety levels would more than be offset by the cost to backfit, particularly when so much of our inventory is there for insurance purposes, and is non-moving. We may not be buying this material. We would not try to do this for every item, we would do it perhaps for every item we expected to buy or we would set a threshold regarding dollar value and to judge the backfit capability.

Mr. McDADE. We discussed a bit about regulatory relief. What are you talking about regulatory relief to remove impediments to timely procurement, what is that about?

General MURRAY. A lot of that is bidding rules.

Mr. REAY. Let me add a couple of specifics. There are a number of things that are either part of the CICA or related laws that are impediments to a more accelerated buy program. For example, today we have to make a determination of a ten percent savings in order to justify mulityear contracts. That is one of the rules.

Mr. McDADE. That has been a pretty good rule though, hasn't it?

Mr. REAY. There is a balance here. The balance is between doing everything we can, as Mr. McMillan indicated, to get competition where it is proper and balancing the fact that increased competition requires an investment in pipeline. But there are a number of other things. For instance, we have a requirement for a 30-day mandatory synopsis period.

Mr. McDade. Do the same thing and just collate for the record these regulatory areas that you think are impediments to you. Give us examples, a concrete example of each one, if you will.

[The information follows:]

The Defense Management Improvement Bill submitted by the Department contains two proposals which, if enacted, would be particularly helpful in reducing procurement lead times.

Private sector firms obtain shorter procurement lead times and better prices partially by establishing longer term buyer-seller relationships than the DoD. To help the Department adopt this private sector practice and achieve similar benefits, Section 201 of the bill proposes to remove some restrictions to multiyear contracting.

Private sector firms order material more quickly than the DoD partially because their administrative requirements for issuing contracts are much simpler. Section 205 of the bill would eliminate complex and costly administrative steps, solicitation provisions, and contract clauses by exempting DoD small purchases from some socioeconomic provisions.

Additionally, the DoD desires legislative assistance to reduce inventories in two ways:

First, the DoD Components could accomplish their inventory reduction missions more effectively in the face of declining appropriations if the sales proceeds of surplus material were returned to them. The Department recommends that the FY 1991 DoD Appropriations Act contain language as follows:

"Notwithstanding any other provision of law, and subject to the continued reimbursement to programs authorized by DoD Instruction 7310.1, the Secretary of Defense may apply proceeds from the sale of surplus personal property of the Department to offset expenses associated with the Department's inventory reduction program."

Secondly, since 1980, the DoD Appropriations Act has prohibited the expenditure of funds for the demilitarization of surplus nonautomatic small (less than .50 caliber) firearms. The result has been that approximately $200 million of unneeded small arms have accumulated in DoD storage facilities. To permit disposal of this material, the Department recommends that language precluding demilitarization of small arms be excluded in 1991 legislation.

Mr. McDade. We had a lot of testimony from the civilian side that one of the ways to get at the root of the problem was to shorten up the number of depots. We realize your requirements are greater, but they kind of said the fewer distribution points you have, the more control you will have of your inventory. It seems to be that basic.

Do you all agree with that?

Mr. McMillan. Yes sir. We are working a DMRD project on consolidation. That was part of the discussion we had just the other day.

Mr. McDade. There was a conversation, too, about treating inventory differently, and I know you have a priority system. They described theirs, as I recall, as a critical inventory list.

Mr. McMillan. In the pilot project we are working on, we think that we can accomplish better management by combining several warehouse systems, and having the most active material in central warehouses and least active in other warehouses, which means you could be more efficient. We think some significant reductions in personnel can occur and actually deliver the goods as fast or faster.

Actually, those suggestions that you heard, we already are working on. I am not sure that the data processing is universally accepted, but it will be a fairly simple task to interface the different Services' ADP systems. There is a pilot project done by Military Airlift Command that would demonstrate that.

I am optimistic that savings can be made through ADP and through the very things that you are talking about that industry is doing.

ADP ISSUES IN INVENTORY MANAGEMENT

Mr. **Murtha**. One of the things we have found is when you start getting into ADP and software, you better be darned sure you have got a good system, because over and over again, we find problems after you spend an awful lot of money that are very difficult to overcome. So I hope you will be very careful when you are involved in that.

People used to come up to us and say it is only a software problem. We found out when you say that that it is a very complicated thing in many cases. I don't know that it is the same thing here, but we don't want to see you invest a lot of money if you can't solve it.

What I am thinking, as I am listening to Mr. McDade, in the Military Services we found that if we invested more money in the Military Services for the military, we were able to reduce services that had to be delivered by CHAMPUS, which costs twice as much. Do you have any area where we can invest money like ADP, which in the end reduces your costs substantially? Is there anything that we can help with in that direction?

Mr. **McMillan**. Yes sir, I think there is, and what surprised me about this pilot project is that we are not talking about as much money as I thought we might be, because we are not starting from scratch. I think that we are going to need some limited financial help to do that, and my experience tells me that we are going to be able to interface these things with more ease than I would have believed and with less money.

Until I have an opportunity to sweat that out I am not prepared to make an absolute definitive statement.

Mr. **McDade**. It is a pretty big limb to be out on. We hope you are right. We want to encourage you and let you know that you will have our cooperation to try to achieve that.

Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Sabo.

SPARE PARTS BUDGET TOTALS

Mr. **Sabo**. how much do we spend acquiring spares each year?

Mr. **Reay**. The total amount we spend on all material, what we call secondary items, right now is between $30 and $35 billion in all accounts in DOD. The hardware is between $19 and $20 billion, although some of this is purchased locally.

Mr. **Sabo**. I am not sure I understood the distinction.

Mr. **Reay**. I am sorry, sir. The distinction is soft goods—clothing, medical, subsistence, fuel. That is the difference between the $30 and $19 or $20 billion.

DISPOSAL PRACTICES

Mr. **Sabo**. Okay. I just had a letter from a constituent whose business is liquidation of hospitals that close. I am curious how you handle our base closings. We may look at hospitals as we are into future base closings, but I suspect Department of Defense disposes of hospitals and equipment in a piecemeal fashion. In contrast, this gentleman handles liquidation of an institution in total. He claims that under DOD's normal process, it takes that by the time material is available for someone to buy it is totally antiquated and out of date.

Mr. **McMillan**. Admiral Davidson?

Admiral **Davidson**. Yes, sir. The Defense Logistics Agency has a reutilization and marketing service that runs disposal services. The average is six to nine months to go through the entire cycle of disposal, which from the time that an installation says it is no longer required, we offer it to other Department of Defense agencies, other federal agencies, other state groups, and roll it all down to when there is no other use, we sell it in lots.

With the base closures going on now, with the potential rollbacks from Europe, we are working very closely with the OSD staff and the Services to figure out how to do that more efficiently. For example, the base closures, we are working on the idea of leaving it in place, right where it is on that station, and working the cycle down, and we are trying to develop plans to accelerate the process to be able to do it in 90 days.

Mr. **Sabo**. Going back to the previous issue, the amount of spares, $19 to $20 billion is for hardware, is it, and the balance, $15 to $18 billion are reserves of software goods, is that accurate?

Mr. **Reay**. No sir. Let's say it a little differently. When we say hardware in our context we are talking about spare parts and repair parts, not soft goods. But both categories are material that we are putting on the shelf or supplying to the military customers.

So whether it is a clothing item or a fuel control on an aircraft, they both fall in the category of support material. I just made a break because many of the circumstances that we talk about with the hardware type items are different from soft goods. Clothing and medical and subsistence tend to be handled in different ways.

Mr. **Sabo**. I had a figure of $35 billion and $19-$20 billion was a subtotal of it. Nineteen to twenty billion are spare parts for hardware?

Mr. **Reay**. Yes, sir, those are approximate figures.

Mr. **Sabo**. And the $15 or $16 billion in excess of that is what?

Mr. **McMillan**. Subsistence, items of clothing and medical.

Mr. **Reay**. Different kinds of items.

Mr. **Sabo**. One is an end product and the other is——

Mr. **Reay**. Right, one is hardware and another category is soft goods.

Mr. **Sabo**. Is the $15 billion for soft goods supplies that are beyond current demand?

Mr. **Reay**. No, sir. These are essentially the current demands. Particularly in the soft goods group we buy very much in terms of demands. In other words, we have new recruits. They all have to have a uniform. Same way with medical and other clothing. The process in terms of the computation is somewhat less sophisticated than it is in the hardware area, where you don't have the same kind of requirement for levels of backup materials and safety stocks.

VALUE OF INVENTORIES

Mr. **Sabo**. This chart shows that our inventories have jumped by $66 billion from 1980 to 1989. It would appear that a very substantial part of our purchases have gone into inventory rather than current usage.

There is an annual $6 billion increase in value of inventory in that ten year period of time.

Mr. **McMillan**. Mr. Sabo, one thing that I will point out, is that the value of our weapons increased from $100 billion to $400 billion. We have more sophisticated weapons, therefore repair parts for them are also more expensive. The inventory on hand that we expect to use within two years is about $75 billion, and the remaining $35 billion is divided among—at least once used equipment that has either been rebuilt or is waiting to be rebuilt.

Some of that $35 billion are things such as supplies that we are holding for foreign governments and weapon systems that we no longer use. There is a long laundry list of things. I think there is about $9 billion, that is the value they put on the books for supplies that need to be disposed of, and most of that $9 billion is in parts that have been used at least once.

UNIFORM PURCHASES

Mr. **Murtha**. DLA buys the uniforms; is that right, Admiral?

Admiral **Davidson**. Yes, sir.

Mr. **Murtha**. Have you slowed down the purchase of uniforms now because you are anticipating less recruits next year?

Admiral **Davidson**. Yes, Mr. Chairman, that is true. As a matter of fact, each year we buy the uniforms for the bag items, or what we call the sea bag, and we manage it to the number of recruits coming out the pipe for each Service. We stay very closely in contact with the Services to know what that number is going to be, and it is changing as we speak. So to the extent that what we are buying today is for a year from now, based on Service projections for recruits.

Mr. **Murtha**. Let me give you some advice. I anticipate there will be a manpower cut of about 100,000 people total this year in all the Services. I may be wrong, but I don't think I will be far off. So I would anticipate that you could use that as a basis for saving some money, because I don't see any way we can get to the Gramm-Rudman-Hollings guidelines without those kinds of cuts in manpower, which translate of course into outlay figures and of course addresses the reduced threat that we have today. That will be some guidance as you are going through this year.

Admiral **Davidson**. We are very concerned about that. We are operating at 80 percent of our sales dollars right now, just as a guess, because we don't know which units are going to come home.

Mr. **Murtha**. What happened with all these shirt sizes that I read about, the half sizes and so forth?

Admiral **Davidson**. The 126 sizes that were in effect up until about six months ago or a year ago were caused by an initiative to outfit the Army recruits and to virtually tailor-make the shirt for the recruits, not only the recruits coming through the pipeline but the junior ROTC women. This shirt is intended to be worn both inside and outside, so there was a very well-intentioned effort to have this variety of sizes so that the women could be fitted better than they were before with 58 sizes.

So there was a decision to add some 60 sizes, which we did and went out and bought them, and the facts as reported are correct, that now we are in long supply with a substantial number of those shirts. Subsequent to that we have reduced those sizes down to 47.

We are buying a replacement shirt. We are talking about the women's shirt in the Army. I have the numbers here. Forty-seven sizes. That is the bad news. The good news is we are issuing about 4,800 a month, so it is a big seller. Obviously to the extent that there is a downturn in the accessions, new women in the military, it will impact that number as well.

Mr. **Murtha**. You are reducing the inventory of those shirts or you are buying new shirts and reducing the present inventory? You are reducing the backlog of 86,000 shirts?

Admiral **Davidson**. Yes, sir.

Mr. **Murtha**. By 4,800 a month?

Admiral **Davidson**. Yes, sir.

Mr. **Murtha**. So you will eventually run out of these shirts?

Admiral **Davidson**. Yes, sir, eventually.

Mr. **Murtha**. You are saying that those shirts fit better and that the women are buying them or they are issuing the shirts?

Admiral **Davidson**. Both. We issue them and they are available for sale as replacement shirts.

Mr. **Murtha**. How long will this excess be in the inventory?

Admiral **Davidson**. I will provide that for the record.

[The information follows:]

We anticipate that the existing stocks of shirts will be exhausted in about seven years.

Admiral **Davidson**. Back of the envelope, 5,000 a month, that is 60,000 a year. That is the total range of sizes, and our problem is really on the fringes where we are not getting demand, 75 percent of our demand is in the first 50 sizes.

Mr. **Murtha**. Now you are also I assume anticipating the size of the forces are going to be reduced, so you are buying less?

Admiral **Davidson**. Absolutely.

Mr. **Murtha**. So there may be a time when you will start to run into a shortage but you don't see that happening?

Admiral **Davidson**. I am not going to have a shortage of women's shirts.

Mr. **Murtha**. I am talking about across the board, not this particular situation.

Admiral **Davidson**. Across the board we have made as a matter of policy for morale reasons, we want to have 100 percent bag items for those recruits, we want every recruit to march down the parade ground in a fresh uniform. That causes some of our excess supply, but we manage to the output of the recruits.

Mr. **Murtha**. What is the magnitude of your excess, 86,000 is obviously way beyond what you need? On the rest of the shirts, would it be anywhere near that figure?

Admiral **Davidson**. Of the total value of the shirts, we have $4.7 million worth of inventory, and of that $3 million is in what we call long supply, beyond the two-year horizon based on current usage.

Mr. MURTHA. So compared to the overall inventory it is not a big figure?

Admiral DAVIDSON. $3 million is a big number, but small compared to $30 billion.

Mr. MURTHA. We are waiting on Mr. Sabo, but we will go with Mr. Miller until Mr. Sabo comes. Mr. Miller?

SMALL BUSINESS INVOLVEMENT

Mr. MILLER. Thank you, Mr. Chairman.

Do you have a problem in small business being be able to pick up their quota of material in some cases? I am not talking about airplanes and the like, but when it comes to parts—does small business step in and are they able to pick up ten percent of the order?

Mr. MCMILLAN. Mr. Chairman, there are set-asides for small business people. I understand that, from a briefing that I had this morning, that the DOD is within less than one percent of their target for set-asides for small business.

Mr. MILLER. How far does this go? I might tell about another committee that I was on several years ago, Treasury, Postal, and General Government; GSA would appear to justify their budget, and they wanted to purchase at that time something like 15,000 automobiles, I guess they are cheaper by the dozen.

But anyway, they did go out for bids, however, the 15,000 would not all go to the lowest bidder. When I questioned this, as to where and why all would not go to the lowest bidder, they said the small business regulations would allow, as I recall, ten percent of those automobiles to go to the smallest manufacturer. American Motors could reach in and take ten percent of that contract, and American Motors did not at that time of course appear to be a small business, but they were the smallest of the auto industries in this country.

How far do you go with the small business set-asides and know that you are doing it properly so that you do not eventually get into a problem by allowing a small business what they are not supposed to have?

Mr. REAY. Let me try that.

Mr. McMillan was absolutely correct in talking about the way DOD handles the small businesses that participate in the defense expenditures through the use of small business set-asides. There is a quantitative objective that we try to reach in terms of what percentage of our business goes to small business.

The problem that small businesses have is that in many cases the requirement for what we are purchasing from the general manufacturing world is above the requirement—above the capability of small businesses to produce.

We have had a number of situations where we thought we were going to be able to effectively use small businesses. The contracts for making our new combat ration that we started several years ago are a good example of how we work very closely with small business. But just the nature of what we are talking about in defense in terms of procurements are often complex, even for items that seem relatively simple, such as food items. The combat rations has a certain set of packaging, a certain set of requirements that you have to have special machinery to produce, and it takes a skilled work force.

So we are encouraging small business to deal with DOD, but many times it puts a burden on those businesses with which they find difficult to work.

Mr. **Miller**. What part of the contracts that you sign would be with small business? What percentage of those would be with small business?

Mr. **Reay**. I don't have a number. We will have to provide that.

Mr. **Miller**. If you could provide that for the record I would appreciate it.

[The information follows:]

Total DoD awards to U.S. business firms for fiscal year 1989 amounted to $120 billion, of which small businesses were awarded almost $22.8 billion or 19.0 percent. In addition, major prime contractors to the DoD reported that they subcontracted some $56 billion during fiscal year 1989, of which they awarded approximately $22 billion or 39.3 percent to small business concerns.

Mr. **Miller**. I am at the present time trying to find out what kind of problems you have with small business. Again GSA, with their automobiles and some more than 10,000 Federal buildings that they provide within their budget, has quite a few contracts with small business apparently for the various items that they stock, which brings me around to how does GSA fit in with your inventory?

As an example, other than tanks and missiles and planes, do you have some of the same type of items that GSA would have? Are you working together? Do you rely on them, do they rely on you?

Mr. **Reay**. Absolutely we do. In fact, we have a very formal relationship with GSA in terms of working at several levels. For example, there are certain items in what we call classes of material in the Federal catalogue for which GSA is a mandatory source. DOD, along with all Federal agencies, must and does buy items from GSA in those classes. I am holding one, pencils, pens, office furniture, items like that.

A second level where we work with GSA, which I think is more exciting than the pens and pencils, is in the area of what GSA calls schedules. We are doing—I think about $2 billion worth of business a year with GSA using schedules. These are cases where GSA goes out to suppliers, actually develops the contract relationship with those suppliers, and then any agency in the Federal Government, including DOD, can utilize those schedules or contracts, if you will, to buy material. DOD is the largest single user of GSA schedules.

Mr. **Miller**. Do you work with GSA to purchase automobiles? They buy automobiles, as I have stated, some 15,000 at a time, and if you had a need for 5,000 automobiles or more, do you work together to get a better price by ordering more on one order?

Mr. **Reay**. Yes, sir. Absolutely we do, particularly the administrative vehicles, the common type of sedans and so forth. You get into unique military type vehicles, normally those would be bought by DOD, but common administrative vehicles we do work with GSA, and in many, many cases put our buy requirements, which are going to be large given the size of DOD, into the total package for a single buy.

LOCATION OF INVENTORIES

Mr. **Miller**. In another area, can you give a little information to the Committee about where you place this inventory of stock that you have? What portion would be in the U.S., and what would we have based overseas? A certain percentage of that inventory would be needed to be located in other countries, but how does that break down?

Mr. **Reay**. I don't have the exact figures, but I can give you a general layout of that. You have to cut it in several different ways. Mr. McMillan mentioned the supply depots that we have that we are looking at in a consolidation effort today. There are 33 of those located in the U.S. Somewhere between 70 and 80 percent of the material that is in the inventory we have been talking about is in those CONUS depots. The remainder of the material is at what we would call the retail or consumer or installation base level. That is a total DOD-wide of about 20 percent.

I don't have the exact mix of what is in the U.S. and overseas of that 20 percent. I will estimate that the majority is still in the U.S., although there are some concentrations of troops in Europe, Korea and so forth, you still have the bulk of the installations being in CONUS.

BUY AMERICAN PROVISIONS

Mr. **Miller**. What about purchasing? We spoke of overseas inventory, but turning to overseas purchasing do we find that many of the contracts are allocated to people in another nation? Are we buying American and buying almost all of our products here in the U.S.?

Mr. **Reay**. We buy most of our products, certainly the vast majority, in the U.S., and obviously we are subject to the Buy American Act provisions. To the extent we are buying overseas, it usually falls into some specialized categories. Cases where we have special cooperative agreements with other countries, say co-production agreements and this type of agreement, usually for significant end items, that is one area.

Another area is in cases where it is so logical that we would buy overseas—I think of the subsistence area where we are buying fresh vegetables off the local economy. I don't have the exact percentage, we could get that.

[The information follows:]

Five percent ($6.4 billion) of the total $126.4 billion in contracts that the DoD awarded in fiscal year 1989 were to foreign sources.

Mr. **Reay**. It is certainly a small minority of the total DOD expenditures that we buy overseas. There are some significant exceptions along the lines of what I mentioned.

JUST-IN-TIME PURCHASING

Mr. **Miller**. Industry now, and commercial stores, they are working on the "just-in-time" inventory. I am sure you people are acquainted with this. You have some articles apparently that just-in-time inventory should work on, and save the taxpayers some money because you would not need to stockpile. I would appreciate your thinking on utilizing just-in-time purchasing.

Mr. **McMillan**. We are doing just-in-time purchasing. DLA is doing most of that. Maybe Admiral Davidson could comment on that.

Admiral **Davidson**. DLA, because we have more of the commercial-type items, similar to GSA we have more opportunity to do this than perhaps the Services. About 34 percent of our procurements are direct vendor delivery, which I would call a variation of just-in-time, that is we are not moving it into stock for subsequent delivery.

I mentioned earlier that our most notable ones are what are called POPS, a paperless ordering system wherein the unit requisitions it, it goes through the computer off a schedule on a direct transmission of the order, direct delivery. Kodak and 3M are two good examples of that. We want to do more of that where we possibly can. We are trying to view our business as a distribution business, not a warehousing business.

General **Murray**. The Army has three programs there working in just in time; our camouflage nets produced by Sioux Indians on reservations, and our tank automotive command has a large program we are looking at in commercial tires and batteries. We are working those three areas quite hard in the just-in-time inventory area.

Mr. **Miller**. That sounds very good. The more you can do of that the better off we are, because we do not need to build the facility to warehouse the items and move it right onto the market, so to speak.

Thank you, gentlemen. Thank you.

SPARES FUNDING LEVELS

Mr. **Murtha**. I think I see a pattern here after looking at testimony by GAO's Frank Conahan before the Senate Committee on Governmental Affairs. He said "annual goals must be established for reducing existing inventory to minimize the system's overall vulnerability to fraud, waste, and abuse." He also says, "The specific problem areas we have identified in the DOD supply system cover a wide range of issues, including inventory growth, inaccurate records, physical security, outdated computer systems, inadequate control over material and equipment furnished to government contractors, overflowing warehouses, and unnecessary levels of inventory."

That is a pretty strong indictment of the system here. I can remember, and I don't like to tell war stories, but I remember when I went into the Marine Corps in 1952 I had to wear my civilian clothes for about two weeks. I don't know if that hurt my morale any, but they didn't have shoes or uniforms that fit me. It seems to me what we are running into is if we put the money out there it is spent, and it seems excessive to have a year and a half supply of shirts on hand. That is just excess.

What would happen if we cut ten percent or $3½ billion out of the spares program, what would that do to your program? That is only ten percent. We increased it by $5 billion years ago. It took us five years to get that through the system to where we finally got spare parts coming in. It seems you probably have a five-year supply of excess spares in many cases.

What would be the reaction if we cut $3.5 billion out? You just said you had $35 billion, $20 and $15, wasn't that the figure? What would be the result if this Committee were to cut out, trying to do it as selectively as possible, but cutting out for spares $3.5 billion?

Mr. McMillan. Mr. Chairman, in our recommendation for the upcoming fiscal year budget we recommended a cut of seven percent or $1.3 billion out of the request made by the uniformed services. I am not sure that I can predict the exact outcome of a further cut, but we are aware of the problem.

Mr. Murtha. For instance the uniforms, it wouldn't hurt the uniforms any because you have a year and a half supply of uniforms. You see the pattern? We put the money out there and it is spent, so you have all this surplus. In some cases you may not be able to use it. Does this include wartime spares? What are we talking about here? Is this excess of spares, spares that you use every day for training and operating and so forth?

Mr. McMillan. Mr. Chairman, we have roughly $34 billion that was categorized in excess. That particular $34 billion breaks up into a number of categories. For example, we purchased additional spares for the B-1 bomber. When we built it we bought the spares and put them in place. Now, that falls into the category of more than two years supply.

Mr. Murtha. Who sets up the categories? Do you set up the categories that puts this into excess supply?

Mr. McMillan. No. The definition is not really excess supply. It is the supplies that we are not going to need for two years.

Mr. Murtha. You call that inapplicable?

Mr. McMillan. I think that is what the GAO called it.

Mr. Murtha. Well, the point I am getting at, and I remember vividly, and this was ten years ago when we had such a problem with our airplanes, combat aircraft, everything, in short supply, uniforms, every time I went out in the field I got nothing but complaints. I came back and Joe Addabbo was the Chairman and we increased spares by $5 billion. It took a long time to build that back up.

It seems to me that if we cut another $3.5 billion off it would start the disposal process and we could use that money this year. This is the year when we need money, we need help from each area to give us a little leeway. Troop strength is going to be the major reduction, but here we are talking about fairly heavy outlays which will be very helpful to us, so can you offer up $3.5 billion or ten percent of the spares program?

Mr. McMillan. I don't think I could recommend that. We have made some substantial cuts, and we are sensitive to the reduction in force in the President's budget.

Mr. Murtha. But Mr. Secretary, you have only been here eight days. It reminds me of General Thurman going to Panama and the first day there was a coup attempt. He had a tough time figuring out what was going on, so I understand the difficulty of your position. I am saying that you can go back and look at this inventory, give us some indication of what we can cut back. You say you have cut back seven percent. If we have a $30 billion excess out there, whatever you call it, there must be more shirts and more items like that can be cut back.

We want to fashion this and find a way without having to hurt the military. For instance, we are looking for funds to reprogram for the military personnel reprogramming, and we can't find the proper sources. You might be able to help us out in that regard. This is where the President wants money for Panama and money for Nicaragua.

Of course every Member wants money for their own constituency, each one of us likes to take money for infrastructure, but this is the transition year, so we need high spendout items like spare parts, and it would be helpful to this committee if you could offer up—maybe it is more than ten percent.

Mr. **McMillan**. We are working on a comprehensive plan and should have that ready within 30 days, and that is all the way from procurement to disposal. I am not sure we will give you the answer as it pertains to $3.5 billion, but we will address the entire spectrum of inventory management.

Mr. **Murtha**. I hope you will take the guidance that I am suggesting and look at the long lead and at the excess inventory and see if we can't take a bold approach in trying to dispose of this excess, because this Committee I think is going to be very disposed towards reducing spares substantially. So the more factual information you can give us, the more important that it would be.

STOCK FUNDING REPAIRABLE PARTS

Let me ask about stock funding repairable parts. One of the suggestions contained in the Defense Management Report and embodied in the President's budget is the stock funding of repairable parts. DOD claims this will make better use of $2.8 billion in budget authority in 1991 and will amount to considerable savings in the out years. In the last dozen years, the Air Force has studied this concept at least three times, twice rejecting it and once deferring a decision. Why are there great differences between the Air Force and Navy approaches to this issue?

General **Bracken**. Sir, I would like to make a few remarks about that. The decision to stock fund depot level repairables was an Air Force decision that we forwarded to the Secretary of Defense in our Air Force Defense Management Review which in-turn OSD implemented for both the Air Force and the Army. We made that decision in a very reasoned way.

First of all, it places the funding responsibility in the hands of the unit, the user of the spares. It puts some financial discipline into that system and it makes good business sense to us to do that, because the outcome of this we think will be a reduction in demands by encouraging better buy and repair decisions on the field level commander, the commander in the trenches.

It gives better flexibility for the wholesale management, the guy that is buying the spares or making the decision to repair them to respond to the changing mixes. It also shortens his horizon from a budget perspective and gives us better forecasting accuracy and better decision making tools because we get better visibility on what it really costs to fly an aircraft. It gives us significant one-time deferral of budget authorities, but that was not the total motivator behind our reasons for doing that.

At this time we think that the time is right to make that change. It was an independent conclusion and the Secretary of Defense, at Secretary Rice's initiative, agreed to do it and he agreed to do it I think OSD-wide, at the same time it came back to us as an OSD defense management review.

Mr. **Murtha**. So the 1986 stock funding study is no longer applicable?

General **Bracken**. At the time that we were in that study everything to us in the mid-1980s was good, our supply system was good and still is. At the time that we did that study, the benefits that we saw from moving in the Stock Fund depot level reparables didn't weigh favorably in terms of what it would cost to implement that, but now that the force structure has stabilized, we feel strongly that in complying with the President's intent and the Secretary's to make our business, the business of logistics, as efficient as we can make it and to squeeze out every marginal dollar in the context of what you dialogued with the Secretary—we felt that the time was right to make that transition to stock funding depot reparables.

There is a lot of stress on our budget, and in order to come down to the lower fiscal guidance that we are going to live with in the future, we felt it is time to make that reasoned decision to move towards stock funding depot level reparables, because there is a payback.

One of the obvious paybacks, even though the direct appropriation will go up in the 1991 budget and you will see that in a very visible way, but at the same time that appropriation is going up we have had about a $2.7 billion reduction in our procurement and O&M accounts because of the movement to stock funding of depot level reparables. That is an important consideration for us, plus the long-term financial support and discipline that that process will put into the system.

I think the Navy experience in that regard has been favorable, and we feel that this is the time for us to do that now.

Mr. **Murtha**. The report also indicates that adequate planning is essential to successful implementation. Mr. Atwood just told us about this several months ago.

General **Bracken**. We have been working with the Navy. We talked to Admiral Moore and his people for a considerable period of time before we made the decision to move into this system, and we thought it out and have moved down that path in a reasoned and disciplined way. We have the time to do it right, we have budgeted for the manpower and the ADP changes that are necessary to implement that, training is very important.

We have worked with the Navy extensively and gleaned from them all of the hurdles that they had to get through to implement this system. It is not an easy thing to do, and that was one of the reasons why we avoided it at earlier times.

The bottom line is that in the long run I think it is the right thing for us to do in the environment we are in now, and we are planning on it. I chair a general officer steering group from all major commands in the Air Force plus the Logistics Command, and we meet on a regular basis to set milestones and do all the planning that is necessary.

INVENTORY GROWTH

Mr. MURTHA. Between 1980 and 1988 Navy aircraft spare parts grew by 311 percent; 235 percent Army increase, 167 percent increase by Air Force. What does that mean? There is supposed to be an improved return rate on reparable response time.

Admiral MOORE. There has been. There is an improvement in aviation and depot level reparables and ship depot level reparables. The growth is attributable to introduction of new weapon systems, modernization of existing weapon systems and return of their installed items and spares which are now categorized as inapplicable or long supply.

From all studies that we have done on why our inventory has grown, the most significant factor is fleet modernization. Modernization impacts growth in a couple of ways: first, buying parts to support the new weapon systems and putting them on the shelf and second, retaining in the inventory the parts that are used to support older declining weapons.

Mr. MURTHA. But you see where the lead time is so important in that regard. If you have a lead time of a couple of years you will have substantial excess. If you modernize the weapon and it takes three or four years to get the parts into the system, it exacerbates the problem. We have to find a way to reduce this lead time and in the end reduce the excess. I know you are working at it——

Admiral MOORE. I agree that we need to work the procurement lead time issue and consider some commercial type practices in order to reduce lead time. Mr. Reay already indicated to you there has been some improvement. It isn't as much as we need. It may not be as much as you want.

In the last two years we have reduced procurement lead time by 20 percent in the Navy. This year we are programming a reduction of 25 percent to production lead time and buying as if we were achieving lead time. We are using procurement vehicles such as indefinite quantity, indefinite delivery contracts. This is one that we can establish a legitimate ongoing relationship with the supplier. We are working in this direction, but no doubt we are not there yet. No question you are right, it is one of the key issues. But it is not that it is not getting attention, sir.

Mr. MURTHA. Mr. McDade?

BUDGET CLIMATE

Mr. MCDADE. I have no questions at this time, Mr. Chairman. I do want to indicate our general feeling that you are a critical part of a very difficult decision year for all of us. We are going to have to make some very, very difficult decisions and there is nobody that is the most important, but there is no group that is going to come into this room this year that has a greater responsibility than you do to try to figure out how to tell us how you can save money.

Because we are getting hit up on the Floor, and I don't have to tell you about all the GAO reports that are out; and unless you come up with some definitive savings as the Chairman has suggested, the consequences to the system may not be directly in the group that is sitting here, but it will affect you and the Services that you have been working your lives to make effective and efficient and robust; and that is where we want to end up.

We think we have a lot of expertise in the room. We know we do. We have heard a lot of you testify before. Work the problem and if you can come back in 20 days, we would like to see you. Do your best.

Mr. **McMillan**. We hear you loud and clear. I would just say that we have had a lot of quotes about how it was in 1980 and how it is today. In 1980 we couldn't keep our planes flying because we didn't have the spare parts, so we don't want to overreact the other way.

Mr. **McDade**. You noted the Senate Budget Committee Chairman talking about $2 billion in outlays?

Mr. **McMillan**. I read the report three or four times.

Mr. **McDade**. I was here both times and I supported the entire buildup and I support a strong military. I know you have the objective, but we have got to try to find ways, whatever you have to do to modernize and invest to change the system around quickly in order that we can get some kind of flexibility, because we are going to get adverse actions from the Budget Committee and others that are going to require us to make some very, very hard decisions.

We need to have recommendations from you as quick as you can about what we can do. That is what I am trying to underline to you. The Chairman has said it to you when he said act boldly. Amen, do it. We need help.

Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller?

Mr. **Miller**. Mr. Chairman, what you are talking about comes home to roost real quick if you will talk to some of the other Chairmen of the Appropriations subcommittees and the authorization committees. I had lunch with a couple Chairmen today, and they were talking primarily about foreign assistance, and what we should do to help emerging democracies.

I am sure that you people have heard about that, it has been announced, I understand, from the White House as to where the funds will come from; where we are going to get the money. The answer is, defense. Another gentleman was talking about his particular committee and programs that he was going to have to expand on; where are you going to get the money? Defense.

So there are going to be a lot of holes punched in the bottom of our change purse, I am afraid, and we are going to be behind the 8-ball trying to find enough dollars to cover what is necessary. We know that so many people are relying on cuts in defense and I feel they feel they have it spent. We are still trying to find out where we would do the least damage in reducing defense.

FORCE MODERNIZATION

I had one question about your testimony, General Bracken, where you are talking about force modernization as a major driver. For example, since fiscal year 1980 we have added and subtracted over 3,000 fighters. I suppose some of those taken out of service would be stored. If you are moving them off line, will all the spare parts that would be held in order to maintain a particular unit be listed out of the inventory?

General **Bracken**. Sir, we have had since the 1980 time frame a significant change in the complexion and the mix of our force structure within the Air Force. In the 1980s we were flying F-105s and a lot of F-4s, F-106s, flying F-15s and F-16s and were still flying some of those older airplanes. When I referred to the 3,000 change, I meant that we took airplanes out and replaced them with newer kinds of airplanes. The B-52 fleet has changed its complexion.

That is a very important consideration in what happened to the long supply kind of inventory that we have. As long as we have those airplanes to support in our inventory, we made the investment years ago, or just several years ago on those weapon systems, and as long as those weapons systems are in our inventory or the foreign military customer inventory, we are obliged to keep a support level for those airplanes.

When we bought $30 billion worth of spares DOD-wide and for the Air Force $13 billion, that levels into what is referred to as long supply. That means inventory that you are not going to use in that two-year period that we are measuring. That inventory is still a good inventory. When I bought it before it was good, and it still is good. Of that $13 billion of long supply inventory that we have, only $1.3 billion is truly excess to our needs. Another $3 billion of that $13 billion is inflation in the period of 1980 to 1988.

And when we get about to a change in the retention policy which we are exploring with the OSD people right now, some of that long supply will move to termination—not termination, but excess, and we can dispose of it, but the residual in there is good. The proof that it is good is we have used it because 60 percent of it is held in an unserviceable status, meaning we have used it and it has been returned to the depots but we have not repaired it because we don't have a demand on it right now.

The long supply story is a very complex, difficult one to understand, but the facts are that that long supply is not all excess to our needs, and as long as the airplane is in the inventory we need to have it there. For example, we made a recent decision on the F-106. It is no longer flying in anybody's inventory, but that airplane now is going to be modified to a drone configuration. We know that, we kept that stock on hand so when it enters back into the inventory as a drone so that our war fighters can exercise the missiles and gunnery systems on the airplane, the airplane will be able to be flown and supported.

Similarly, when the Challenger crashed and we had to pull out of our inventory the Titan rockets which we had stored, we took them out of the holes and converted them to space boosters; we had all the spares for those Titans and were able to support our space recovery plan in a way that was very cost-effective to the government.

So that long supply is good inventory, and in the Air Force case only a billion and a half is excess. We will get rid of the other $4 billion or so as soon as we get the retention policy which OSD has taken the lead on, sorted out and implemented.

Mr. **Miller**. That inventory of a billion and a half, it isn't impossible for you people to sell? Can the commercial airlines in some cases use some of the same parts that you use?

General **Bracken**. Very little of it now, sir. In fact, we go to the commercial sector to get their parts. In the area of tankers, the KC-135 re-engining program, we are using the assets that we bought in conjunction with those airplanes that we got as donors for the airplane. We have a billion and a half worth of parts that we are in the process of disposing, but the problem is that the marketplace is not that demanding for the kinds of things we are talking about. Nobody is looking to buy spare parts for a Titan rocket.

Mr. **Miller**. I understand that we are talking about those parts that would be interchangeable. But it seems to me with 3,000 fighters, that is a lot of fighters. Take the F-106 that you were talking about. Suppose you were disposing of that completely. Yet you have a lot of parts in inventory for the F-106. Are those pulled out?

General **Bracken**. Yes, sir. When there is no further application for that airplane in anybody's marketplace, either ours for our own active forces, Guard or Reserve or a foreign military sales customer, we will dispose of them. We are not trying to hold onto them because we have no use for that part.

SR-71 SPARE PARTS

Mr. **McDade**. Would you yield? On that point, General, speaking for this Committee—unfortunately, the SR-71 is out. We thought we had worked out an accommodation that would have kept it flying, but it was decided otherwise. You were ordered to lay that up. Press reports indicate you are carrying $700 million worth of inventory for three planes that somehow are in mothballs.

General **Bracken**. I have on hand inventory about $1 billion worth of spares for the SR-71. Effective for January of this year, we have terminated all of the spares buys that are not applicable anymore. There are some subsystems on that airplane that we will continue, we will not terminate those buys, and that equates to about $8 million that we are not going to terminate in spares on that airplane. All the other spares we have terminated, with the exception of $8 million for three subsystems that will have applications in other areas, which I can't discuss in open forum.

Mr. **McDade**. Let me back you up a minute.

General **Bracken**. I made an error. That $1.2 billion, only $700 million of it is spares and the other $450 million of it is engines, spare engines for those airplanes. As long as we keep those six airplanes, and we are going to, NASA gets three and we will hold the other three in long-term storage, those spares, that $700 million worth of spares still has application to that specific airplane. I think it is prudent for us to keep those spares. It is not costing us anything to keep them. Our capability to cost to inventory, the total spares is only about one percent of the inventory.

Mr. **McDade**. Where did you get the authority to mothball three?

General **Bracken**. Sir, I think we were directed to——

Mr. **McDade**. Look at that.

[The information follows:]

On November 20, 1989, a letter from the House of Representatives, signed by 30 Congressmen, strongly urged Secretary of Defense Cheney ". . . to mothball the remaining SR-71 aircraft in a central location for possible use should a protracted conflict develop in the coming years." The Air Force agreed to place into storage five SR-71 A Models and one SR-71 B model trainer. Vice Admiral Richard Truly sent a letter to the Air Force on December 22, 1989, requesting that the Air Force consider NASA's use of a high speed, high altitude research flight vehicle in their disposition of these assets. On January 5, 1990, the Air Force approved the loan of three SR-71As, flight simulator, and other associated equipment to Ames-Dryden Flight Facility with a total "recall" string attached. Air Force Logistics Command is drafting a loan agreement for NASA with the understanding that these assets be returned to U.S. Air Force control within 90 days of notification.

At the time of termination, the SR-71 program had roughly $1.188 billion in assets in support of worldwide requirements. Spare parts were required at three stateside and two overseas locations. The SR-71 program in the 60's under Air Force Systems Command (AFSC) management had an original life expectancy of approximately 10 years and spares were purchased for this life cycle. When it was apparent that airframe life would exceed this forecast, program management was transferred to Air Force Logistics Command (AFLC), the fleet was reduced in Primary Aircraft Authorized (PAA) and aircraft rotated between temporary storage and operations. This effectively extended the available spares to carry the program into the '80s. By 1984, the spares situation had reached critical proportions, with spare engines, in particular, being nonexistent. In fiscal year 1985, AFLC undertook a concerted effort to improve the logistic situation and build-up engines and spares. Beginning in fiscal year 1987, AFLC began buying minimal spares to sustain annual flying hour program. The actual spare parts inventory includes 82,000+ different line items of unique bonded stock, 41,000+ different line items of unique spare parts, and 4,000+ different line items of National Stock Numbers (NSN) parts. A further breakdown of the program assets is as follows:

A. Spare Parts: Inventory for aircraft spare and repair parts are valued at $679 million. These parts were unique to the SR-71 program and were used to maintain the fleet in direct support of worldwide operating locations and flying hours. This includes airframe, engines, avionics, etc., at both the base and contractor repair facilities. Breakout of the total $679 million indicates that $295 million of spare parts are located at the contractor repair facility and $384 million at five Air Force facilities. Some NSN items are being returned for redistribution within the regular Air Force stock channels. Except for those parts being saved to support NASA, the majority of the remainder are being turned over the DoD's Defense Reutilization and Management Office (DRMO) for disposal.

B. Spare Engines: There are 25 spare engines in the inventory which are valued at $450 million. Having no value to any other program, some will be retained for NASA usage while others will be loaned to aircraft museums.

C. Support Equipment: Aerospace Ground Equipment (AGE) inventory is valued at $59 million located at five sites. These items include avionics test stations, jet engine test stands, radar and autopilot testers, etc. Except for those assets needed to support NASA, this equipment is being submitted for redistribution into regular Air Force stock channels.

General BRACKEN. It is long-term storage on those six airplanes.

Mr. McDADE. My recollection of what happened around here was that you were ordered by the authorizing committees to terminate it. We made an effort to move it to the Guard and put them in a standby mode. That was rejected, unfortunately. It seemed to me the Congress had spoken and said goodbye, SR-71 and goodbye, Blackbird.

General BRACKEN. Sir, it is gone.

Mr. McDADE. You are mothballing three——

General BRACKEN. Three of them are going to NASA.

Mr. McDADE. You are mothballing three and maintaining a billion dollars worth of spares?

General BRACKEN. $700 million worth of spares.

Mr. McDADE. Plus the engines, it is a $1.2 billion?

General **Bracken**. $1.1 billion.

Mr. **McDade**. Are you selling those to NASA, donating them?

General **Bracken**. Sir, I don't know what the financial arrangements are.

Mr. **McDade**. What is the authority to mothball three? Put that in the record because I think it goes to the heart of the question Mr. Miller raised, and it is a hard problem for all of us.

General **Bracken**. There is probably not a customer out there for those $700 million worth of spares because they are truly unique to that weapon system. I have to keep some level for NASA——

Mr. **McDade**. I don't remember anybody talking to us about the billion dollars and mothballing it, after we fought to keep it alive and lost, I don't recollect anybody asking us is there money in the budget to mothball them.

General **Bracken**. They are in long-term storage.

Mr. **McDade**. Is there money in this budget to put them in storage?

General **Bracken**. No, sir. It is in the 1990 budget, sir.

Mr. **McDade**. What are you carrying in 1991?

General **Bracken**. I will have to provide that for the record.

[The information follows:]

Plant 42 is an Air Force owned facility and any storage of SR-71s there incurs no additional cost. The same applies for NASA's storage of three SR-71s at Ames-Dryden Flight Facility. NASA's budget will provide for a more extensive exercise of aircraft equipment (performed semiannually), environmental preservation, and shelf life replacement equipment (i.e., survival kits, pyros, drogue chutes) in fiscal year 1991.

General **Bracken**. If I could clarify one point, we got the three for NASA plus three more, I see you suspect the three more are contingencies for the three airplanes NASA is flying and not for our use, and that the $700 million worth of spares are for the NASA airplanes.

Mr. **McDade**. Were the people carrying them in the budget, et cetera.

Mr. **Murtha**. Who is going to run these things at NASA? That is the first I have heard that this was happening. You just turned them over to them for a dollar or something like that?

General **Bracken**. Yes, sir.

Mr. **Murtha**. You have no operational expense——

General **Bracken**. NASA is going to cover the operational expense of the airplanes.

Mr. **Murtha**. What would they use them for?

General **Bracken**. High-level, high-altitude, high-speed research.

Mr. **McDade**. I just think we need to hear a little more about who made all these decisions and by what authority.

[The information follows:]

The Air Force Logistics Command is drafting a loan agreement for NASA. The agreement is to be revisited in one year to determine if permanent transfer to NASA is warranted. Loan of U.S. Air Force aircraft to NASA is governed by Air Force regulations which have been in force for approximately 30 years. Currently the following types of aircraft are on loan to NASA: TR-1A, U-2C, NB-52B, WB-57F, YF-15A, YF-16A and X-29A. On January 16, 1990, the Air Force notified the 30 Representatives of the planned storage of six aircraft—three by the Air Force and three by NASA.

Mr. **McDade**. No further questions, Mr. Chairman. Thank you, Clarence, for yielding.

Mr. **Miller**. Mr. Chairman, I have no additional questions.

Mr. **Murtha**. Thank you, Mr. Secretary and gentlemen. The committee will adjourn until tomorrow morning at 10:00 a.m.

TUESDAY, MARCH 6, 1990.

SPARE PARTS AND INVENTORY CONTROL

WITNESSES

ERWIN W. MOELLERING, DIRECTOR OF MATERIALS MANAGEMENT, GENERAL MOTORS SERVICE PARTS OPERATIONS

LYLE G. HEIDEMANN, NATIONAL MANAGER, LOGISTICS SERVICES, SEARS ROEBUCK AND COMPANY

JOHN JESSUP, STAFF VICE PRESIDENT, PURCHASING AND MATERIALS MANAGEMENT, TRANS WORLD AIRLINES

INTRODUCTION

Mr. MURTHA. The Committee will come to order.

We are pleased today to welcome three representatives from industry to talk to us about spare parts and inventory control. The witnesses today are Mr. Erwin Moellering, Director of Materials Management, General Motors Service Parts Operations; Mr. Lyle G. Heidemann, National Manager, Logistics Services, Sears Roebuck and Company, and Mr. John Jessup, Staff Vice President, Purchasing and Materials Management, Trans World Airlines.

We certainly appreciate you gentlemen coming before the Committee today. You have seen the stories about defense management and mismanagement of spares and some of the criticisms are not valid, but some of it is, and we thought we would listen to you and see what suggestions you might have.

A hundred billion dollars is the inventory that we are talking about in the Armed Services. I don't know what kind of an inventory you would have, but I would guess it is not of that magnitude. They have about an $8-10 billion true excess. We were talking a little bit before the hearing started about the difficulty in trying to figure out exactly what systems are going to actually be fielded. Some of those excesses come from the fact that the weapon system wasn't fielded and we started buying spares before the weapon system was fielded.

You might think about this and address it—one of the problems DOD has is getting rid of our excess spares. It is much more difficult to get rid of their spares than I would assume it is getting rid of yours.

I appreciate you coming before the Committee and we look forward to hearing any suggestions or criticisms you may have about the way the Defense Department runs things and about how we can improve our system.

Mr. Moellering.

STATEMENT OF MR. MOELLERING

Mr. MOELLERING. Thank you, Mr. Chairman.

Good morning. My name is Erwin Moellering and I am Director of Materials Management for General Motors Service Parts Operations, or as we refer to it, SPO. SPO is headquartered in Flint, Michigan and is responsible for supplying replacement and service parts to owners of GM cars and trucks through GM dealers and independent wholesale distributors. I have been involved in GM's parts business in various positions since 1963. I am glad to be here today to assist this Committee in any way possible in its examination of parts warehousing and distribution practices.

SERVICE PARTS OPERATIONS

Simply put, the work of SPO is getting the right parts to the right place at the right time. We carry out this mission through a 14,000 person network, which includes sales offices and warehousing facilities around the world, including 29 parts and distribution centers in the United States.

Our parts reach the vehicle owner in two ways. We have AC-Delco parts which are distributed through the independent automotive after-market, which includes wholesale distributors, mass merchandisers and auto parts stores. AC-Delco parts include those automotive maintenance and service products that are commonly replaced during the lifetime of any vehicle, such as spark plugs, batteries, filters and shock absorbers. While the AC-Delco network accounts for a sizable amount of SPO business, the majority comes from the sale of General Motors parts to more than 9,000 GM car and truck dealerships worldwide. GM parts include virtually every type of part used on late model General Motors cars and trucks produced in North America—from exterior sheet metal and interior trim to axles and wheels. In all, SPO stocks some 360,000 different parts to service more than 71 million General Motors cars and trucks on the road worldwide. Our SPO-international sales department ensures that parts are available for the more than 1.8 million North American produced General Motors vehicles in use outside the United States.

TWO-TIER SYSTEM

SPO's parts warehousing and distribution system is a two tier system. The first tier includes six parts plants that receive raw components from some 3,000 General Motors and non-General Motors suppliers and they process them into service parts. This processing includes operations like unitizing, in which kits are assembled from separate components, attaching hardware and installation instructions. The parts plants also prime, paint and apply protective wrap to sheet metal parts, and package molding, trim and other service parts.

At the parts plant level, all service parts are packaged, labeled and otherwise prepared for distribution to the second tier system, the parts distribution centers—warehouses, if you will. Our 23 parts distribution centers are warehouses that are strategically located around the country to supply parts to dealers and distributors in a timely fashion, via a dedicated transportation delivery system and common freight carriers.

The parts plants and parts distribution centers contain a total of approximately 24 million square feet of floor space, and ship more than 24,000 tons of parts each month.

Keeping this supply line filled is the responsibility of my department. In general, we service all the parts used to produce the original vehicle, and we offer additional subassemblies that reduce installation time for the customer. Approximately 2,900 parts are released to service each individual car or truck. That is our system. A number of different guidelines help us determine how long we will keep all these parts in our system after the vehicle is produced. Every part stays in our system throughout the vehicle's warranty period—the manufacturing warranty period. Parts needed to meet federal safety or emissions regulations remain in our system longer—for ten years after vehicle production. The length of time we keep our parts on hand is determined by their sales rate, and varies by make, model and type of part.

Sales data also help us predict volume requirements. We maintain a sales history of up to 24 months for each part in our system. That is a current history as far as what our needs are going to be. We really have a history on the part, engineering data, and that type of thing for much longer, but the sales history we look at is on a 24 month basis. These data are fed into a series of seven computer based models that range from sophisticated harmonic algorithms for forecasting seasonal sales patterns to simple, weekly moving averages for stable, low volume items. When the forecast system runs each month, it creates the best forecast for a given part by selecting the model that yields the lowest standard deviation, or expected forecast error.

Once we know our expected volumes, we must determine how to apportion our inventory among our 24 parts distribution centers, so the right parts will be in the right place. A running log of sales at each parts distribution center for the last several weeks is used to determine the percent of national demand each parts distribution centers will reach its reorder point, and what its replenishment requirements will be.

By summing the replenishment requirements of all the parts distribution centers, we get a picture of how much stock we are going to have to ship to them from our parts plants, and when. We repeat the process for our parts plants by conducting a time phased subtraction of the expected parts distribution centers replenishments from the sum of inventory on hand, in transit, and on order with the supplier. This allows us to determine not only how much additional material we need to order, but when it must arrive. This process is conducted for each supplier, based on their lead time period for manufacturing—normally 12 weeks.

PROCUREMENT LEAD TIMES

Mr. **Murtha**. We want to compare the procurement lead times of industry to those of the Department of Defense. In other words, the interval between identifying a requirement and receiving the material varies from 486 days for the Air Force to 881 days for the Navy. Now, are we talking about the same interval here—in other words, from what I have asked, can you tell that you are talking about the same type of interval before you get the parts?

Mr. MOELLERING. I will try to answer that in our perspective, Mr. Chairman. I don't know what your interval includes, but our interval includes, for example, the time from when we place an order for a particular part to be manufactured by a supplier, and they indicate that it takes us six weeks or 12 weeks, or whatever, to be able to fill our order lead time, to schedule that into our productive capacity, and to build it and to get it shipped to us. That is the first phase of that lead time from the manufacturer to our parts processing plants.

The time from the processing plant, where we have to package and do some other value added work to that, and then redistribute it to a parts distribution center, usually is about another four weeks lead time in our system. So we vary, depending on the part. Some manufacturers say, "I only need three weeks to get that part to you." That means our lead time will probably be down to a seven week lead time.

So they have the tooling on hand, they have the specifications, the blueprints, et cetera, and we will have a contract with that supplier to manufacture or produce those parts, and when we release against that contract, we say, build us 5,000 of this particular part against that contract, it depends by manufacturer how long the lead time is. We are talking about the time when the part is scheduled to be manufactured until we actually receive it and distribute it through our system.

Does that answer your question?

Mr. MURTHA. The reason this is such an important question is that two and a half years ago, the Under Secretary of Defense directed that the procurement lead times should be reduced by approximately 25 percent by the end of fiscal year 1988. So this is not something that has just come up. We have been paying close attention to this year after year.

The Department of Defense has estimated in total each day of procurement lead time costs about $40 million—each day, so you can see what it is costing us because we can't get the lead time down. And even if you double the amount of time you are talking about, the DOD is still considerably more than industry.

Go ahead.

Mr. MOELLERING. Did that clarify that for you, Mr. Chairman?

Mr. MURTHA. Yes.

PARTS ORDERING PROCESS

Mr. MOELLERING. Thank you. By summing those requirements up, it allows us to determine not only how much additional material we need to order, but when it must arrive. This process is conducted for each supplier, depending on what their manufacturing requirements are.

Before an order for additional material is placed, a final reasonableness test is applied to assure that the system is not recommending the purchase of more parts than we need. This reasonableness test, and a new procedure known as an all time requirement estimation, are designed to reduce the number and amount of parts that remain in the system after demand for them has ceased. Miscalculations cost valuable floor space, tie up capital, and increase administrative costs by forcing us to price and catalog parts for which there is no market.

This is a thumbnail sketch, of how our material control system operates today. It is called a "push replenishment" system. Basically, this means that we place firm orders with suppliers at their stated manufacturing lead times based on what we expect to sell. We are currently in the process of changing our system to individual part level control, as a first step toward implementing pull system replenishment.

In the pull system environment of the future, we will provide our suppliers with a forecast of our anticipated requirements for the next 12 to 16 weeks for their planning purposes. Then we will only order within mutually agreed upon limits, based on our actual sales for this period. We will ask them to manufacture against our longer range forecast and as we record sales, if we tell them that we expect we are going to sell a thousand pieces within this forecast planning period, and we sell at the rate of 200 a week, we will actually pull from them 200 to replace the sales that we experienced during that past week rather than bring the full thousand pieces that we forecast in the planning of our inventory requirements.

So we are trying to get leaner as far as inventory control is concerned, and shorten lead time from manufacturing until we actually need it.

I have given you a very general overview of our material control system. Although our system is based on standard industry practices, we have modified it over the years to meet our customer satisfaction and cost effectiveness goals, and we are continuing to improve it.

I would be happy to answer any questions you may have about our system and how it generally operates.

Mr. MURTHA. Now, you just made the statement, Mr. Moellering, that you try to work a balance between the lead time and the size of the inventory?

Mr. MOELLERING. That is correct.

Mr. MURTHA. You are not going to sell a lot of cars if every time one breaks down a customer has to wait 12 weeks, so the inventory has to be in the dealer's hands. So you try to figure out exactly what he should have and have enough stock with him and with your distributor to eliminate that lead time?

Mr. MOELLERING. That is correct, and we build what we call inventory buffers into the system. Those basically are equal to the amount of time the consumable—if we are consuming the inventory at the rate of say a hundred pieces per week, and the lead time is five weeks, we will usually keep five weeks of inventory, five times 100 the consumed rate in our inventory, so that when we order with a manufacturer and if his lead time is five weeks, to replenish our stock we will keep that buffer of five weeks to cover that lead time.

SPARE PARTS AVAILABILITY

Mr. **Murtha**. It used to be that half our combat aircraft were deadlined because of spare parts, we didn't have them available. They had to order them from the factory and it took forever to get them.

Do you have a measurement of percentage of parts that you have available to the dealer so he can immediately take care of the customer?

Mr. **Moellering**. Yes, Mr. Chairman. We try to measure off-the-shelf availability to the customer and we also measure availability out of our warehouses to the dealership, and we strive to for every 100 parts ordered for a dealer, we strive to fill 97 percent of their requirements in the first fill. Last year we achieved 96 and a half percent against all the orders that we processed. We achieved 96 percent fill from our inventory back to our system to our distributors and dealers.

On the highly competitive parts, where we are not supporting warranty, we are in competition for these kinds of parts, we keep about 95 percent, because that is a much higher, faster turnover rate and usually your lead times are shorter, and the wait for that kind of part, the warehouse distributors carry more inventory on those types of parts.

Mr. **Murtha**. So how long do the customers that are in the five to four percent category have to wait?

Mr. **Moellering**. That varies depending on the situation. If we have had engineering change because of some particular obsolescence or a defect in the vehicle, and the part has to be engineered, we have much longer lead times because we have to set up new tooling.

Generally, we turn what we call back order files—we generally turn about 75 percent of our back orders in less than two weeks, and we hit about a 90 percent turnover of our back order file within about eight weeks.

Mr. **Murtha**. Mr. Heidemann, would you like to comment on this line of questioning? It would be helpful to us if you would comment on the differences between DOD and Sears.

Mr. **Heidemann**. What I would expand on is the point that he made relative to service level. One of the things that is very important to us, just like it is to probably everyone in the private sector, as well as the readiness from a supply center standpoint, is what percentage of the demand can you fill on an immediate basis?

What we try to do is have various service levels, based on the type of product based on its historical demand. For items that are considered to be strategically important from a customer standpoint, we would try to achieve a 97 plus service level. On merchandise where the demand is less frequent, or that isn't strategically important, or where possibly there is the ability to substitute one item for another item, because of past components, et cetera, we would probably run anywhere from an 80 to a 90 or 95 percent service level on that merchandise.

For inventory management, from our standpoint, service level drives the amount of inventory we need. Statistically, the difference between a 90 percent service level and a 100 percent service level requires twice the inventory to have 100 percent service level versus 90 percent. In our business about 75 percent of our assets is inventory, so obviously we are very sensitive to the amount of maximizing the return on our inventory investment. Service level is one of the ways that we try to attack that, and we measure that on a monthly basis at a department level.

At a line level, and on the key items we classify those differently from the rest of the items in our assortment, and the key items we can finite out and measure independently from the total.

Mr. **Murtha**. The 90 percent is in what time frame, within two or three days, within a week?

Mr. **Heidemann**. The way we would measure the 90 percent service level would be based on the point where a consumer wanted it and based on historical demands. From the retail standpoint, it would be based on historical rates of sale and the number of times that we are out of stock during a number of days of a month.

Mr. **Murtha**. But how many days does the customer have to wait for the 90 percent? In other words, you have 90 percent available immediately?

Mr. **Heidemann**. It varies by product. For some items our goal would be to have 97 percent or higher available for the customer. For other items our goal would be to have 90 percent available immediately. The remaining percent would vary depending upon where we stock it, anywhere from three days to a week.

Mr. **Murtha**. The Air Force, according to staff, fills 85 percent of its priority one requisitions from inventory within two or three days. Would that be the 90 percent you are talking about, or the 95 percent you are talking about?

Mr. **Heidemann**. We would probably be in the 90s.

Mr. **Murtha**. You are saying that to increase service level to a hundred, you would have to double your inventory?

Mr. **Heidemann**. Right. Every outside consultant that we have dealt with, relative to managing inventory, has said that is a pretty common statistic.

Mr. **Murtha**. Mr. Jessup, would you like to comment on what we are talking about here? This particular problem.

Mr. **Jessup**. I represent an industry that is probably the closest to the problems that you are having. We run a 95 percent inventory performance level at TWA—95 percent of the time the parts are available when the mechanics want them.

Mr. **Murtha**. That means within two or three days——

Mr. **Jessup**. Immediately.

Mr. **Murtha**. In other words, the airplane comes in, it has a problem, the part is there 95 percent of the time?

Mr. **Jessup**. Yes. That is on a worldwide basis, the way we monitor our inventory. We have an online system that we use. We have to track all parts and pieces so whether it is in Paris or Peoria, Illinois, we use the same computer system to keep track. We look at the status daily and monthly, and annually, and right now, we are running 95 percent. That is an average, because ground support equipment will have one picture, Rolls Royce another, and we monitor it by primary commodity.

ITEMS IN INVENTORY

Mr. **Murtha**. What are we talking bout volume-wise in all three areas?

Mr. **Jessup**. TWA has 213,000 inventory stock items, over 100 inventory stations, around the world. We are running a 95 percent service level. Volume on purchases, which relates to this inventory is about 490,000 purchase orders we prepare annually, about 1,300 a day. We have $531 million in annual purchases and we deal with 8,000 suppliers.

Mr. **Heidemann**. From the parts standpoint, Sears would stock parts in excess of 400 locations and at those 400 locations, depending upon the size of the market that is there, it would vary as to the number of parts that they would carry in stock and the depth they would carry in stock.

We are in the process of consolidating our backup warehouse into one location nationally that would service those 400 locations as well as integrating some parts back to the suppliers, where we would not carry any inventory on that merchandise but in fact, order directly from a Whirlpool, as an example, depending on the type of merchandise. That would pull from the sources directly to the service center that is going to work on those parts.

The number of parts we carry in stock total approximately 100,000 parts a year. That is any one time, not in every location, but at one point in time. We try to move as much of that back to the sources because the sources—Whirlpool, et cetera—are producing parts not only for us, but for their own branches, et cetera, and it is more efficient to integrate that back to the source rather than for the retail service centers to carry that inventory.

Mr. **Moellering**. Mr. Chairman, our order activity, we get about 431,000 individual requests from customers everyday in our system, and we stock approximately 360,000 part numbers. Our inventory to support these sales is about $1.2 billion, and we experience about $5.5 billion in sales annually.

We process to our sources of manufacture about 4,000 orders a month. In other words, we are processing orders to bring parts back into our system to replenish our sales at the rate of about 46,000 requests a month of our supply base. That will give you an idea of the magnitude of our system. But on those 313,000 order requests today, that is where we apply the measure of 97 percent. That first fill on that, we are able to fill 97 percent of those requests a day.

Mr. **Murtha**. Before we get to the rest of the questions, Mr. Jessup or Mr. Heidemann, do you have any additional comments?

Mr. **Jessup**. I basically covered my statement with answering your question. I would like to mention that though TWA is a long time established carrier in the industry, and we do have an old computer system, but it is, according to my counterparts in the Air Transport Association, one of the most sophisticated systems domestically. I have brought some information which I would like to leave for your particular experts to look at on the actual system. We are trying to market the system to two other carriers.

STATEMENT OF MR. HEIDEMANN

Mr. **HEIDEMANN**. The comments I would make would be based on two different experiences that I have had with the Private Sector Council and with NAFSA. These were two different inventory projects with the Private Sector Council. I would like to mention some things I think are opportunities to be looked at probably from the whole defense standpoint. First, you carry a wide breadth of inventory based on the various types of merchandise or equipment that you have to maintain for a long period of time. So the number of parts that you have to maintain is large in comparison to us.

What I saw in those two experiences was that it wasn't a case of the breadth of the inventory, the number of parts, and different stock numbers you had to carry, but the depth of inventory. The number of pieces of each item that you had at various locations, particularly compared to the rate of issue is critical. The majority of the items that we looked at had less than one issue a year, which meant that they only had one demand a year to be used.

And that doesn't mean that you didn't have a lot of items, that you had a huge amount of demand, but the majority had one demand or less in a year's period of time. So the depth of inventory, we felt, was an opportunity.

The other one was service level, i.e., the level of service that you needed on all types of merchandise. The recommendation was that you should have finite levels of service based on the demand of the merchandise or the rate of sale, or rate of demand, and/or based on the customer demand for these goods, whether they can wait three days or wait two weeks if the ship is in port—and typically I think they were in port two or three weeks. For many parts, they only needed to have them before they left again.

They didn't need them on the day that they got in dock. For that type of merchandise, rather than have all those goods on hand that one day, you could stratify that and say that you could have three weeks to get it to the ship before they left.

Mr. **MURTHA**. You are saying when a ship comes into port it is going to be there for ten days, two weeks, maybe a month, so it is unnecessary to have that tremendous inventory to take care of it the minute it comes into port?

Mr. **HEIDEMANN**. Particularly on parts and supplies that are not unique to a piece of equipment, where all ships are using the supplies in particular. The important issue was that they had them before they went to sea. We felt that there was an opportunity, based on service level, to reduce inventory.

Mr. **MURTHA**. So they could hold those parts in a central location?

Mr. **HEIDEMANN**. Absolutely.

STOCKAGE LOCATIONS

Mr. **MURTHA**. When the ship comes in, ship them out there, and put them in place. In other words, that is a part that either could be repaired after they went to sea or they would have time to repair it when it is back?

Mr. **HEIDEMANN**. Correct, or to fill the ship's supply.

Mr. **MURTHA**. How big would you say that problem was?

Mr. **Heidemann.** I would have to go back and read all my past documents. That goes back about three and a half years, Mr. Chairman. It is definitely an opportunity, and I would hate to quote something without having gone back to my documents.

But to your point, one of the other opportunities was stocking locations. In many cases, we were stocking the same merchandise in every supply center where in fact the rate of issue was low enough that if the ship was porting in Norfolk, or maybe a better example—Norfolk was the largest of the centers—if the ship was porting in Jacksonville, since it was going to be there ten days to two weeks, it wasn't important that the Jacksonville center had the goods.

The important issue was that Norfolk had it. I think in your business, just like in our business, the fewer stocking locations reduce the amount of inventory that we carry, and increase the service level for our customers. The stocking locations, in our opinion, was also an opportunity. We also felt that on merchandise that had high rates of demand, there was an opportunity to review those demands more frequently and buy from the suppliers in smaller quantities more often rather than large quantities less frequently, again reducing the amount of average inventory and pushing more of the inventory burden back to the supplier.

Mr. **Murtha.** So there is no reason to believe that because you bought a bigger volume that you are saving money because you are going to have to stock these items and that costs money.

Mr. **Heidemann.** In our case, similar to General Motors, we would contract for X amount of goods for a period of time and then we would pull against that contract over a period of time. I think the feeling was, in our case, that the amount of inventory we have in our system costs us money from an interest standpoint, from a handling standpoint, from a physical square footage standpoint, and all those things are big issues to us, and consequently, the more inventory we carry, the greater the burden on our bottom line.

Obviously, reducing average inventory affects payroll, affects interest, affects handling costs, warehousing expenses, et cetera.

SPECIAL HANDLING OF CRITICAL PARTS

Mr. **Moellering.** I echo those comments and would support that very much so. The more inventory points in your system the more inventory you are going to carry, and the pull system that I described that we are going on an individual part number control basis, is just that kind of system.

Pull system will not work with all classes of parts. They are the high turnover, readily available consumable where you can predict a certain consumption rate. I think that is an opportunity, Mr. Chairman, for the Department of Defense to try to categorize the parts into various different categories of demand requirements or criticality.

The very critical parts that we need for like safety standards and for keeping a car operating and running, you have to have those in your system regardless, so you take some risks with inventory in that, because you need it to support customer sales.

On the consumable parts, it is important that you are able to determine the rate at which those parts are consumed and if so, then you put them strategically near the points of consumption and try to put it in as few points as you can and look at your depth and breadth of inventory, especially on a competitive part that you don't want to run out of.

Mr. MURTHA. Like a spark plug?

Mr. MOELLERING. Yes, where it is readily available like a commodity in the marketplace. Those parts we keep a depth of inventory because if you run out of inventory, you lose the sale to someone else. So we categorize the parts and look at them from the standpoint of criticality as well as consumption rate, and the computer programs try to track the sales rate with the lowest deviation of forecast and we keep replenishing into inventory at that consumable rate.

If parts are critical for defense or operation of a particular unit you might treat that inventory differently than you would a consumable type of part. I don't know whether you track the rate of consumption of parts, but that would be a very critical thing in trying to reduce inventory.

Mr. MURTHA. Mr. McDade.

LENGTH OF INVENTORY LEVELS

Mr. McDADE. Thank you very much, Mr. Chairman.

Let me express the gratitude of the Committee to all of you for taking time from busy schedules to give us the benefit of your expertise, which has been very helpful to the Committee.

One of the differences that I heard was you said, that if you have a federal safety requirement on a part, you keep it ten years or so?

Mr. MOELLERING. Yes.

Mr. McDADE. I believe I heard you say that one of the major differences between what we have to do and you have to do is the enormous breadth of the inventory, because of the time that items are kept in our inventory.

Mr. HEIDEMANN. Yes.

Mr. McDADE. GM would keep those—did you limit it to safety and federal regulation items for ten years?

Mr. MOELLERING. For ten years, yes.

Mr. McDADE. Are they the longest lived inventory parts you have?

Mr. MOELLERING. Not necessarily so. We have many parts that are engineered into our vehicles that we use year after year and they are consumed at a certain rate. We keep a part in our system to support a vehicle that is out there as long as the vehicle is still on the road.

PARTS FOR AGING EQUIPMENT

Mr. McDADE. You do that worldwide?

Mr. MOELLERING. Yes. How many registrations there are of different models and makes that are still out there and need to be serviced. We track the sales on those and we watch the sales curve. Usually the early part of the vehicle when we put it into production, the sales rate is fairly low, except for maybe some warranty work or that type of thing. As the vehicle gets older, our sales rates accelerate as parts wear out and that type of thing. So we might find about two to three years out that our sales rates will start to accelerate and then we will see a decline again as there are fewer of those vehicles as they are replaced or junked, and as they go out of production and new vehicles come in.

We base it on a sales rate.

Mr. McDade. New sales?

Mr. Moellering. Yes. We look at the part and at the inventory and determine what carrying costs of inventory are and what our profits are on that part that is generating after it is out of the guaranteed warranty period, and then we retain it in our system based on the consumption rate and the fact that these parts are still being consumed, and we can offer them to a public and make a profit on it.

Mr. McDade. You are not stressed by a piece of equipment that is 40 years old?

Mr. Moellering. We do have parts for vehicles that date back—there are a lot of collector type vehicles and we keep parts in our system for collectors.

Mr. McDade. Let me relate this experience to you. A company that was a constituent of mine had a lot of items that would stay out longer than anybody ever thought they would and the cost of inventory got to be so difficult for them that they established a worldwide secondary parts facility so they didn't try to keep an inventory for a carburetor for a 1945-whatever. If they got a request for it, they would fill it through a central parts area, recognizing they couldn't deliver it within the time frame that you normally would do for your service customer satisfaction activity.

Do you do anything comparable to that?

Mr. Moellering. We do. In the accelerating sales period we move that inventory out to more of our facilities closer to the consumption point. As the sales decline, we will stop buying and try to forecast what future sales rates are going to be and sell our inventory down, and we will bring it back from our field centers and put the final inventory in maybe one center nationally, and keep what we call an all time supply. We try to at a certain point in time, tell the manufacturer we don't need you to manufacture that any more, but we would like to buy 1,000 pieces to put in our inventory and when that is consumed it is done.

Mr. McDade. That makes sense, and the problem that distinguishes that from the problem the Department of Defense faces, would be servicing B-52s on Guam that are 30 years old now, and nevertheless, are being forced to have an inventory to service that, and maybe a ship that is also tied up out there that is expected to be on call. So there is—you talked about the difference in time—the time requirement representing a difference in the demands of inventory requirements as you look at it worldwide. Would you all agree with that?

TWA, you fellows tried to turn over that fleet and stay modern, competitive. The last thing you want is a plane that is 25 or 30 years old, isn't it?

Mr. Jessup. We have some airplanes that are 20 years old now.

Mr. McDade. That is analogous to the kind of problem that you find in the Air Force. What do you do if you know that is different than the way the Air Force manages that inventory with respect to those 20 year old airplanes?

Mr. Jessup. I don't know how the Air Force does business. I can speak to what my industry does, and specifically TWA. We have maintenance programs set up by the FAA, we have to comply with FARs. That calls for maintenance routines, overnight, a C check once a year, or a D Check. We build profiles of routine work that is called out.

Then you have unscheduled work, things that are created through inspections of aircraft. We build profiles on parts and pieces that are required for those. In the computer system we try to allocate parts and pieces—we have major maintenance bases in Kansas City, St. Louis, New York and Los Angeles, then we have secondary maintenance it changes every time we change a schedule.

If we are going to put an airplane in and change where we put it, we move inventory. We operate materials management as a service to the company, and we have to have the parts available at a station so we can dispatch the aircraft on time. So we are continually moving inventory almost every day.

For example, if this morning one of our flights out of Washington, D.C. has a problem and it is a dispatchable type problem, we will call ahead and we have a maintenance control group that will identify the part that they need and when the airplane lands, we will try to get the part to the airplane. If we can't do it during the day, and we know where the airplane is going to be overnight, we will make sure we send it to the airplane overnight.

In most cases we have the parts. Sometimes we have to bring them in from overseas or go to the manufacturer and get them, or go to another carrier. But they have to be air worthy parts.

Mr. McDade. This is based upon your experience profile with the airplane plus FAA regulations?

Mr. Jessup. Yes, sir.

Mr. McDade. So you have a definable floor that you have to maintain?

Mr. Jessup. On what is known, yes. With the aging fleet, we are getting a lot of surprises that are totally new to us. We are going into new territory right now.

Mr. McDade. Like what?

Mr. Jessup. Cracks, corrosion, that we have never seen before.

Mr. McDade. How do you try to deal with that kind of a new horizon?

Mr. Jessup. Personally, it is hard. We are working with Boeing, Douglas and Lockheed, and trying through the engineering side of our business, having an aging fleet task force with each manufacturer. They are taking the airplane and trying to identify areas of fatigue, corrosion, cracks and we are trying to do some parts planning where the engineers will tell us what they suspect will break, and what percentage, and we are working with the product support people on provisioning and trying to project ahead as to how many parts we are going to need.

PLANNING REQUIREMENTS

Mr. McDade. A second area, if I heard your testimony correctly, in servicing your customer and making sure that as the market reacts, new model, new item, new route for the airlines, that your position is to be able to make sure that customer is satisfied within a very short period of time. It is based on your market analysis and the history of how you have to deal with that to make sure you get customer satisfaction. That is a layman's version.

The other side of that coin is that the Department of Defense has to be prepared for a surge drill, a go-to-war drill. It is not just based on what the market analysis is, which is more definable than trying to figure out what the threat might be and what kind of part you need, if something unforeseen happens, and a war breaks out. So the planning requirement it would seem to me, to try to deal with that, to have the inventory where you would need it in the event of a worst case world war, is a good deal different than looking at it from the standpoint of the market. No question about that either?

Mr. Heidemann. You have to walk a very fine line on the word readiness, and it is very difficult to define what readiness means. To your point, readiness, depending upon where you are sitting in the Armed Forces, would mean that potentially if I had a worldwide crisis that I would need to have enough spare parts to support my fleet whether it is airplane or ship or whatever.

Mr. McDade. Given that difference I think I hear a common theme that you try to narrow down to items that you consider to be critical and items that can wait, that don't have to be on the deck and the ship in the morning. I try to refine to a critical area the inventory needs. It would seem to me that even though you have a substantial difference between the way you inventory and the way the Department of Defense has to be prepared for a worst case scenario, you could still do the criticality examination. It would seem to me that could still be done.

If you were to manage that big inventory based on a need for worst case surge, you could still try to refine it with criticality and things of that nature?

Mr. Heidemann. He mentioned they rate items of merchandise based on importance and we do also. There are certain things we call basic-basic that we don't ever want to have out of stock. There are things we have as a lower rate item where stock isn't as critical. There are items that are available from a manufacturer, and on those items you have an opportunity. Readiness doesn't necessarily mean that you have it in every location, but that it is available to you in a short period of time from the inventory, or from the source.

Mr. McDade. I know there is a priority system within the Department of Defense inventory system. I am not sure how they do it.

RAPID ACQUISITION OF MANUFACTURED PARTS

One other question, if I may. I think it is the Navy, and I think down in the Charleston area they are the lead for a multiservice operation to try to produce parts off a computer designed facility—

the new system of not having to do blueprints, just program the machine and have it cut out the part to service aging ships, aging planes, et cetera. I think it is just in the kind of a mockup mode at this time, but when I heard about it, it sounded like a good way. It is kind of chasing the Holy Grail around to think you could lower your requirements, including critical parts for orders if you could go to new manufacturing processes and use the new computer methods to turn out a part in a day.

Is that the Holy Grail, or does that make sense?

Mr. **Moellering**. I think there are certain parts that you could apply that to. If you have a manufacturing source of supply in which they can deliver within a very reasonable period of time and duplicate that part, I don't think it is Holy Grail at all. I think you should try to identify those kinds of parts and those kinds of manufacturers that can support you that way, those kinds of inventories, and it certainly would present an inventory reduction opportunity.

Mr. **McDade**. Yes, because under the definition of inapplicable parts that we use in the Department of Defense, there is something like a $30 billion figure floating around that is within that definition of inapplicable inventory. If you could somehow work that down and then go to this other system——

OPPORTUNITIES FOR INVENTORY REDUCTION

Mr. **Moellering**. Let me stress again the rate of consumption is critical to how much inventory you have in your system. Where it is needed in your system is dependent on how much inventory you might need. The more places that you need that, the more inventory you need to carry. And the availability of that from the manufacturer and that lead time to you, the availability time, is equal to a time line of inventory that is required in the system.

It seems to me that there might be an opportunity to examine each of those particular time lines and look at what the opportunities are, and try to protect consumption rates and then how critical it is, and how quickly available it might be from the source of manufacture, and that would be an opportunity for inventory reduction.

In any inventory reduction program, there is sort of a management between the service factor and the availability of the part and the level of inventory to support that. We try to balance that to get the highest degree of customer satisfaction, the highest number of hits, so to speak, from our inventory in the shortest time frame at the lowest inventory cost. That is what we try to balance.

Each part has a different history. We try to look at every part and its consumption rate and where we need to have it, and how critical it is to customer service, and where they can wait, wait.

We don't have the same situations that the Department of Defense has, but in theory, what I just spoke of are the things that should be looked at by the Department of Defense in order to reduce inventory.

Mr. **Jessup**. The computerized machine shop basically is something that Boeing Aircraft Company of Seattle, Washington is putting into effect now. They are building one and they are going to invest close to $100 million that will not only manufacture for existing fleets that are flying, but for the new fleets that are on the production line. They are hoping to reduce their inventory and reduce our costs as the operator.

Mr. McDade. When does that go into production?

Mr. Jessup. It should be in next year.

Mr. McDade. We are proposing money from this Committee to try to do a similar thing from the federal side.

We are very grateful for your testimony. It has been a great help.

Thank you very much, Mr. Chairman.

Mr. Murtha. Mr. Dicks.

COMPETITION IN SPARE PARTS PROCUREMENT

Mr. Dicks. What percentage of your spare parts inventory do you think represents material provided by more than one producer?

Mr. Moellering. We try to limit the number of procedures to single source in most cases except where it is sort of a commodity type item or where capacity limits that supplier in supplying everything that you need.

Mr. Murtha. You don't stress competition, you try to limit it to sole source so you get the service, is that the idea?

Mr. Moellering. We used to have a very competitive bid type process, and we still do, from the standpoint of selecting the manufacturer that we are going to have as a source. We do a competitive bid process but we are going more to longer term contracts with our suppliers, and more single source kind of contracts, and we are developing relationships with our suppliers where we try as a team to reduce our costs and to limit the amount of inventory that we have between us in the system. And we feel that that is the best way to reduce our total cost and become more competitive.

We, likewise, test that system against the marketplace and we try to do that jointly with our sources. Periodically, we will go with the source and go out and test the marketplace to see that they are still competitive from the standpoint of their cost, et cetera. But we see a trend toward working more as partners with our suppliers than bidding them one against the other.

The only reason we would go to multiple sources is if there isn't enough capacity with a single source to supply all of our needs.

Mr. Heidemann. A further comment. I couldn't give you a percentage of parts with basic sources, but we do try to build lasting relationships with our sources and we are at the point now not only from a spare parts standpoint, but even from a retail standpoint, where through EDI we are sharing inventory and forecasting information with our sources. So that by telling them what our demands are going to be into the future, they can build against those demands, and we can reduce our inventory and when we need it, they will either have it in finished goods or near finished goods. So we try to build a partnership relationship between our vendors and stores and parts centers.

Mr. Dicks. Is that mainly aimed at trying to enhance stability in these relationships? Probably the biggest problem we have is there is so much instability that you have changing numbers, requirements, everything else. There is a very adversarial relationship that builds up.

It would seem to me that a more stable business relationship gives stability in a program so that they can plan and know what to anticipate.

Mr. **Moellering**. Precisely.

Mr. **Heidemann**. Both sides should win in that partnership. We can reduce our costs and inventory and they should be able to reduce their raw materials and finished goods. Both sides in that partnership should benefit.

Mr. **Dicks**. To what extent do you use procedures such as breakout, purchasing parts directly from the manufacturer instead of from the prime contractor, and reverse engineering, developing technical data packages which may be used to develop alternative production sources by physically measuring and examining parts, to encourage competition and lower costs. Do you do any of that at all?

Mr. **Heidemann**. Not to my knowledge.

Mr. **Moellering**. The only similarity to that would be the source of supply for the manufacturer of the original vehicle might deliver an entire system and they might buy component parts of that system from several different manufacturers. If we service that part as a total system, we buy it from the original manufacturer. If we were going to service the individual component parts, we would go back to the second tier or third tier supplier in the system, and buy those components directly and bring them into our system rather than buy them from like the prime contractor, as you describe.

Mr. **Jessup**. In our environment, of the 215 line items that we have, only 65,000, in round numbers, are competitive. All the rest are either single source, sole source, or proprietary. We are pushing for competition as much as we can. We are trying to get away from the OEMs and buy parts from their subcontractors.

Boeing, Lockheed and Douglas don't manufacture everything that goes on in aircraft. They use a lot of small mom and pop operations who make parts and we are trying to deal directly with them as much as we can, but it is very difficult, because of the proprietary nature of those parts. We are trying the three bid process. We feel we get better service and prices by dealing direct.

Mr. **Dicks**. So you try to do that as much as you can?

Mr. **Jessup**. Yes, we do.

Mr. **Dicks**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller.

SPARE PARTS BUY OUTS

Mr. **Miller**. Thank you, Mr. Chairman.

I am wondering if you have the same type of a problem, gentlemen, that the Department of Defense has, because of a sole source, perhaps. They would order a given amount and have an inventory at a given amount, but then it is not supporting the manufacturer, and in that case, Department of Defense will look for a buyout, and they in turn, will have all the stock or have the manufacturer run the process long enough to acquire the stock.

Do you have any items that you from time to time must have and no one else really is going to use that type of item, or perhaps maybe they will use it, but it would be a buyout, acquiring all that is available, and put them into inventory?

Mr. **Jessup**. In our industry we have a lot of items that fall into the proprietary nature. We do a provisioning conference—and we have those quarterly, every six months, or annually, depending upon the item. We sit down with the supplier and try to project our needs. We even exchange the data electronically, and we don't have a supplier actually go into manufacture with a year's worth, but we will tell him what we are going to need.

We have the flexibility of our counterparts, fly the same type of aircraft, and engines so if we don't need it, someone else can pick it up. That is a partnership that we have with our primary OEMs. To my knowledge, we have never had to buy out anything. We have always worked it out somehow with the suppliers.

Mr. **Moellering**. If I may address that. We have both situations in our industry. We have certain parts that at a certain point in time the manufacturer says I don't want to manufacture these any more and I will make a buyout or a runout for you, and we try to forecast or predict what our all time requirements are, and we will take those into inventory.

In other cases, in order to minimize our inventory, and we still see future for example, the prime contractor no longer wants to manufacture these parts—we take the tooling that we have paid for in order to manufacture this product, and we hold that tooling proprietary to our business and we might move that tooling to another manufacturer and then set up a pull or demand kind of system, or an order system with a prime contractor. We do that to minimize the long term buyouts and the errors that we might make in forecasting as far as consumption rate.

In many cases it is easier for us to maintain the tooling and not produce the parts, but then have a manufacturer add a full time tool-up and produce the parts for us. So we have have both situations.

Mr. **Miller**. Do you find it is necessary not only to buy out the product but buy the tooling and you need to warehouse the tooling?

Mr. **Moellering**. Yes.

Mr. **Miller**. We have that in Department of Defense and it takes quite a few square feet in order to cover, but it is necessary in case of an international problem when we need to get it out and someone has to start manufacturing it rather hurriedly.

Mr. **Moellering**. If it is a critical part of the maintenance of that vehicle we will take the tooling and put it in warehouses. All of the tooling is proprietary in most cases except for commodity type parts that might be available, like certain fasteners or things of that nature, but most of the tooling we have paid for already.

Seventy percent of the parts that we purchase in our spare parts system come from a General Motors proprietary manufacturer, our own division, so to speak. When they go past model, then our proprietary divisions no longer want to produce that, because they are using their capacity to produce a current model. That is when the parts division will take that tooling and either move it to another supplier or determine an all time requirement for a buyout, as you have indicated, or do something with the tooling, to put it in the warehouse.

So we have all of those situations that you describe.

Mr. MILLER. Thank you.

Thank you, Mr. Chairman.

DISPOSAL PRACTICES

Mr. MURTHA. Let me ask about disposal now. For instance, we just retired the SR-71. We took it out of the inventory. That means they have spares for that airplane that are very expensive. I don't know how many they have, and I will ask the Department of Defense and it will be a big figure.

The DIVAD is a system we canceled as it was being built, but we had spares for that because we buy in advance before it comes on line.

They probably have spares for the F-100 and airplanes that have been out of the inventory for 20 years. How do you dispose of your inventory of spare parts once the item is out of the system? If you sell off a division or you do away with an automobile or something like that, how do you get rid of your spare parts?

Mr. MOELLERING. I will speak to the automobile. We are constantly reviewing sales and demand rates on those. For example, there might be a technology change and this particular part is no longer technically feasible to put into a car, and there is a new technology. In technical obsolescence we take the hit and get rid of the inventory rather than spend the money to warehouse it, move it around——

Mr. MURTHA. How do you get rid of it?

Mr. MOELLERING. In many cases we scrap it, dispose of it.

Mr. MURTHA. It is more expensive to warehouse it than it is to scrap it?

Mr. MOELLERING. We find that it is when you think of carrying costs of inventory and moving material around and maintaining it, and the fact that that space is needed to support current vehicles. Likewise, when we see that a vehicle no longer needs support, we will have sell-downs. We try to predict when we want to stop buying and we try to sell our inventory down to a certain point. Then we determine how much we think we are going to need to support every request we have from here on out. If we have 5,000 pieces in inventory and forecast that we only need a thousand, we will warehouse the thousand and scrap the 4,000.

In some cases, another supplier might decide to buy up our surplus inventory and try to profit from that, and make it available in the marketplace themselves. We will have sales of that inventory, 50 cents on the dollar or turn it over to a distributor and say we are not going to carry it in our system, but if you would like to buy it at a certain rate and carry it, we let the private enterprise do that.

There are different ways, technical obsolescence, and that the sales support and revenue generated don't support having the inventory.

Mr. MURTHA. What percentage of inventory do you have at any one time?

Mr. Moellering. We keep track of our obsolescences and try to hold that to a certain percentage of our sales. Generally, we are running three to four percent.

Mr. Murtha. Three to four percent of inventory?

Mr. Moellering. Of our inventory we allow for scrap.

Mr. Murtha. Our figures indicate in the Department of Defense it is more like nine percent. So it is twice as high and of course, a very expensive inventory.

What about TWA?

Mr. Jessup. We have an active material sales staff. For a company our size it is small, seven people, but they basically are charged with disposing of excess material, and material can be excess for numerous reasons. There is a surplus market in our industry and we buy and sell on that market. Today, we have $28 million surplus to our needs and some of that is brand new material. We will have to do a minimum buy of 100 of something, we need 10, we may sell off 50. Maintenance may decide to change something for improved reliability. There are half a dozen reasons why we would have parts for sale.

Mr. Murtha. In the Services they have to go through a laborious process of disposing of excess spare parts but being able to sell it gives you a lot more flexibility.

Mr. Jessup. Yes. In many cases though, the military flies a military version of Boeing, Lockheed and Douglas aircraft.

Mr. Murtha. One of the problems we have is when you get rid of spare parts in the Services you have to go through a process where the state and municipalities get a chance to look at them, or other services. So it is an expensive procedure to dispose of spare parts in the Services.

It may be counterproductive. We are starting to look at it.

Mr. Heidemann. We would do the same thing in that when we got to the point that either the product was obsolete or where it had gone beyond the life cycle, where we know how many items are in the marketplace and the life of them and based on expectancy of when it will be disposed of, we maintain X number of pieces in one place and we would either scrap it or try to sell off those goods at a low percentage on the dollar in most cases.

Mr. Murtha. Do you have about the same percentage as General Motors? They said about four percent. Is yours about the same?

Mr. Heidemann. It is a low single digit number.

Mr. Murtha. Would it be lower than the Services, which is almost ten percent?

Mr. Heidemann. Yes.

Mr. Murtha. Is yours the same at TWA?

Mr. Jessup. Five or six percent, give or take.

Mr. Murtha. Mr. McDade.

Mr. McDade. I have no further questions.

Mr. Murtha. Mr. Miller?

Mr. Miller. No questions, Mr. Chairman.

Mr. Murtha. We appreciate your taking the time to appear today. We are going to get some experts to look into this problem to see if we can give them some direction.

I was given an example of a small company that came to see me and said they are dealing with the U.S. Postal Service and they got the sole contract for a new vehicle that you are selling to the Postal Service—a big buy. They are able to produce parts 31 percent below dealer price or dealer costs. In other words, they are selling it to the Postal Service 31 percent below what anybody else could produce because of the volume, and it will be a sole source contract, originally bid. But it gives you an idea of the savings, depending on how they work it.

That was impressive to me that the bid came in that much lower than the dealer cost. We have a lot of work to do. We haven't been able to find a solution and when it is such a big bucks item, we are going to continue to work on it. We certainly appreciate you gentlemen taking the time to testify before the Committee.

Mr. **Moellering**. Thank you, Mr. Chairman.

I would offer to you the opportunity that if you would like to send some representatives to get into more technical detail from the standpoint of our computer systems, our forecasting models, and the different scenarios that we have, we would be happy to entertain those people with some of our people back at General Motors.

Mr. **Murtha**. I appreciate that discussion. I think we will ask for what we call an S&I study. We will have experts from the field who will look at the testimony, look at what the Department of Defense has to say, and then come visit you in private industry and see what we can translate to DoD. Because we are talking about a lot of money here, and we are having a hard time getting the DoD to pay attention. Maybe if we make concrete suggestions, we can save a substantial amount of money.

We appreciate your coming before the Committee.

The Committee will adjourn until 1:30 p.m. this afternoon.

WEDNESDAY, MARCH 7, 1990.

FISCAL YEAR 1990 DEPARTMENT OF DEFENSE REPROGRAMMING

WITNESSES

MICHAEL B. DONLEY, ASSISTANT SECRETARY OF THE AIR FORCE, FINANCIAL MANAGEMENT AND COMPTROLLER

LT. GEN. RONALD W. YATES, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR ACQUISITION

B-1B DEFENSIVE AVIONICS SYSTEM

INTRODUCTION

Mr. MURTHA. The Committee will come to order. We are pleased to welcome today Honorable Michael Donley, the Assistant Secretary of the Air Force for Financial Management, and Lt. General Ronald Yates, the Principal Deputy Assistant Secretary of the Air Force for Acquisition, to discuss the status of the B-1B's defensive avionics system. This is Mr. Donley's first appearance before the Committee and one of General Yates' final appearances before he tacks on his fourth star and moves over to head up System Command.

If I remember, you used $13 million to get along until about the middle of March or something like that?

Mr. DONLEY. Sir, in early January we set $13.5 million to get us through about March 9.

Mr. MURTHA. So now you are down again to a critical point where you need some additional money. If you would summarize your statement, then we will get right to the questions.

SUMMARY OF STATEMENT OF MR. DONLEY

Mr. DONLEY. Mr. Chairman, General Yates and I appreciate the chance to discuss the B-1 ECM core program today with the Committee. On January 24th the Secretary of Defense sent a letter to the committees notifying them and requesting the committees views on the Air Force plan to obligate M account funds for the B-1 ECM program. That is the subject we are here to discuss today and we would be happy to answer any questions you might have.

[The joint statement of Mr. Donley and General Yates and a copy of the B-1B letter follows:]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON DEFENSE
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: B-1B

STATEMENT OF: Michael B. Donley
Assistant Secretary of the Air Force
Financial Management and Comptroller

Lieutenant General Ronald W. Yates
Principal Deputy Assistant Secretary (Acquisition)

DATE: March 1990

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

MR. MICHAEL B. DONLEY

Michael B. Donley is assistant secretary of the Air Force, financial management and comptroller. He serves as the Air Force's chief financial officer responsible for providing the financial services necessary for the effective and efficient use and management of Air Force resources.

Mr. Donley was born Oct. 4, 1952, at Hamilton Air Force Base, Calif. He earned a bachelor of arts degree in 1977 and a master's degree in international relations in 1978 from the University of Southern California. He completed the program for senior executives in national security at Harvard University in 1987.

He served in the U.S. Army from September 1972 to September 1975, and was assigned to the XVIIIth Airborne Corps and the 5th Special Forces Group. He is a graduate of the U.S. Army's intelligence and parachute schools, and the Defense Language Institute.

In 1978 Mr. Donley was selected to be the first editor of the National Security Record, a monthly publication of the Heritage Foundation.

Before joining the Senate Armed Services Committee, he served as legislative assistant to Sen. Roger Jepsen, for whom he staffed the major Senate debates of 1979-80, including increases in defense spending, selective service registration, and the SALT-II agreements.

From January 1981 to June 1984 Mr. Donley was a professional staff member of the Senate Committee on Armed Services under chairman Sen. John Tower. His oversight responsibilities included overall defense budget analysis, readiness issues, procurement of munitions, the operations and maintenance budget, and other matters related to the preparedness subcommittee.

From June 1984 to December 1987 Mr. Donley was director of defense programs at the National Security Council (NSC). He was the primary staff officer for review of the defense budget and served as NSC observer to the Defense Resources Board. His responsibilities included issues related to general defense policy and management, the Joint Chiefs of Staff and the unified and specified commands. He was an NSC staff liaison to the president's Blue Ribbon Commission on Defense Management, and led interagency review and coordination of presidential directives concerning defense reorganization and national security strategy.

In January 1988 Mr. Donley was appointed deputy executive secretary of the National Security Council and senior director of the White House situation support staff. He was responsible for providing information support to the assistant to the president for national security affairs and the NSC staff, and for coordinating interagency procedures for crisis management. In addition, he supervised the White House situation room, NSC computer systems and emergency planning. He assumed his present position in November 1989.

Mr. Donley is married to the former Gail Ellestad of Palos Verdes, Calif. They have three daughters: Katie, Cameron and Jacquie.

(Current as of December 1989)

Biography

United States Air Force

Secretary of the Air Force, Office of Public Affairs, Washington, D.C. 20330-1000

LIEUTENANT GENERAL RONALD W. YATES

Lieutenant General Ronald W. Yates is principal deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.

General Yates was born Oct. 3, 1938, in Memphis, Tenn., and graduated from Hillsboro High School, Nashville, Tenn., in 1956. He earned a bachelor of science degree in military science from the U.S. Air Force Academy in 1960 and a master of science degree in systems management from the University of Southern California in 1970. The general completed Squadron Officer School in 1964, Air Command and Staff College in 1971, Defense Systems Management College in 1973 and the Industrial College of the Armed Forces in 1977.

Upon graduation from the academy in June 1960, he was commissioned as a second lieutenant. The general received his wings in September 1961 after completing primary pilot training at Spence Air Base, Ga., and basic pilot training at Webb Air Force Base, Texas. He then completed F-102 combat crew training at Perrin Air Force Base, Texas, and was assigned to the 68th Fighter-Interceptor Squadron, Itazuke Air Base, Japan. In June 1964 he transferred to the 509th Fighter-Interceptor Squadron, Clark Air Base, Philippines. During this tour of duty, he flew 100 combat missions in F-102s in Southeast Asia.

The general returned to the United States in June 1966. He was assigned to the Aerospace Research Pilot School, Edwards Air Force Base, Calif., as a student, and remained there as a test pilot and chief of the Aerospace Research Pilot Branch until December 1970. During this period he flew a wide variety of fighter aircraft modified for test purposes. As project pilot in the NF-104 rocket-powered research plane, he made numerous flights to altitudes exceeding 100,000 feet.

From January 1971 to January 1973 General Yates was assigned to Headquarters Air Force Systems Command, Andrews Air Force Base, Md., as director of senior officer management. He then was selected to attend the Defense Systems Management College. Upon graduation in May 1973, he was assigned as director of development test, A-10 System Program Office, Aeronautical Systems Division (ASD), Wright-Patterson Air Force Base, Ohio. The general graduated from the Industrial College of the Armed Forces in June 1977. He then was assigned as the F-16 program element manager, Office of the Deputy Chief of Staff for Research and Development, Headquarters U.S. Air Force, Washington, D.C.

In March 1979 General Yates returned to ASD, where he served successively as deputy F-15 system program director and F-15 program director. He became commander of the 4950th Test Wing, also at Wright-Patterson, in July 1981. He was appointed as the ASD director for tactical systems in April 1983 and system program director for the F-16 multi-national fighter in August 1983. The F-16 program was the largest aircraft acquisition program in the history of the Department of Defense. Under General Yates' leadership, the F-16 System Program Office was awarded the Secretary of Defense Superior Management Award for 1984. He also received the Air Force Association's Distinguished Award for Management for 1986. From July 1986 to February 1989 he was director, tactical programs, Office of the Assistant Secretary of the Air Force for Acquisition. The general assumed his present duties in March 1989.

(Current as of June 1989)

OVER

General Yates is a command pilot with more than 3,500 flying hours. His military decorations and awards include the Distinguished Service Medal, Legion of Merit with oak leaf cluster, Distinguished Flying Cross, Meritorious Service Medal with two oak leaf clusters, Air Medal with three oak leaf clusters, and Air Force Commendation Medal with oak leaf cluster.

He was promoted to lieutenant general March 1, 1989, with same date of rank.

General Yates is married to the former Constance Siegrist of Nashville. They have three children: Wade, Dawn and Kristen.

Mr. Chairman and Members of the Committee, we appreciate the opportunity to appear before this committee to discuss the B-1B ALQ-161A "core" recovery plan. The mission of the B-1B aircraft is to penetrate enemy airspace and deliver nuclear weapons on strategically important targets. The ALQ-161A defensive avionics system plays a major role in successfully completing the B-1B mission.

The system installed on the SAC operational fleet, currently standing nuclear alert, is referred to as the ALQ-161A Mod 0 hardware system. In 1982 the Air Force awarded separate contracts for the development of the ALQ-161A and for the production of 100 units and related support equipment. It was determined that there were numerous deficiencies in the ALQ-161A system, both in design and hardware which had to be corrected. The "core" program upon which the contractor is currently working, provides a fleet wide ECM system update to a baseline (Mod 0) configuration, which includes both hardware and software changes to achieve performance requirements and insures supportability.

The B-1B program managers intended to fund the ALQ-161A correction of deficiencies with expired and "M" account aircraft procurement monies pursuant to the changes and correction of deficiency clauses in the original contracts. Our General Counsel and the General Accounting Office (GAO) in their report on "Strategic Bombers, B-1B Program's Use of Expired Appropriations", agreed with the Air Force's conclusion that the use of expired/lapsed appropriations fully complies with applicable legislation and regulation. Congress has since modified the law to strengthen oversight of expired/lapsed appropriations and the B-1B ECM upgrade.

The Air Force has implemented an electronic countermeasures recovery plan for the "core" program. To date, the contractor successfully completed the "core" Preliminary Design Review (PDR), delivered Block 4.01 software, conducted six Critical Design Review (CDR) panels, and has begun systems integration testing. The CDR was a solid engineering review of the designs the contractor intends to pursue to achieve the "core" requirements. The CDR, to date, has identified only two areas requiring further review. One concerns fault isolation in the Central Integrated Test System (CITS). The second concerns receiver "bleed-through". Finally, the contractor systems engineering staff is working off known problem reports (PRs). Solutions to these PRs are scheduled to be tested by mid-May 90.

Although the "core" program is essentially on schedule, two specific problems could potentially impact that schedule: B-1B exhibition for Strategic Arms Reduction Talks (START) verification measures and the discovery of Radio Frequency (RF) isolation problems with the Air Force Anechoic Facility (AFAF). The B-1B exhibit could delay flight testing approximately five weeks. Every effort is being made to minimize the schedule and subsequent cost impact caused by the exhibit. The AFAF did not meet a scheduled Nov 89 certification date due to an RF isolation problem. However, it appears the recovery plan is sufficient and the Air Force will be ready for "core" testing on schedule in the May-Jun 90 timeframe. To date we have seen no show stoppers.

Pursuant to Sections 9071 of the DoD Appropriations Act and 1603 of the Authorization Act, Secretary Cheney has notified the Defense Committees of the Air Force's intention to access the $418 million balance of the expired/lapsed appropriations required to complete the "core" production contract effort. Prior to this notification, the Air Force had obligated a total of $214.7 million on the ALQ-161A production contract which included $109 million of expired/lapsed funding. In addition, the Air Force has obligated $73.7 million on the ALQ-161A full scale development (FSD) contract and needs to obligate another $20.3 million of active R&D funds to complete the contract FSD effort. We also need to obligate $10.9 million active funds for the other associate contractor's flight test activities supporting "core" FSD. We recognize that the Department of Defense is required to formally notify the Committees on the Air Force's desire to use this remaining $31.2 million for FSD "core" requirements.

Current funds on the production contract will be exhausted by March 9, 1990. Continued access to expired/lapsed accounts, as well as, access to active funds already appropriated for full scale development, remain essential to the successful completion of the ALQ-161A "core" program.

THE SECRETARY OF DEFENSE
WASHINGTON, THE DISTRICT OF COLUMBIA

24 JAN 1990

Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
House of Representatives
Washington D.C. 20515

Dear Mr. Chairman:

For many months now Secretary Rice has been discussing with your Committees the "core" recovery plan for the B-1B defensive avionics suite--the ALQ-161A. As you know, we have been incrementally funding this important effort with expired/lapsed appropriations in order to continue under the current Eaton contract while awaiting final Congressional action on the 1990 budget request. The Authorization and Appropriation Acts placed certain restrictions on the B-1B program and the restoration of expired and lapsed appropriations. The General Accounting Office (GAO) in the report, "Strategic Bombers B-1B Program's Use of Expired Appropriations, (B-235114 September 5, 1989)," references both the legal and policy basis. The GAO agreed with Air Force General Counsel's conclusion that ". . . the modifications planned for the B-1B's defensive avionics system, the ALQ-161A, are within the scope of the original contract. . ." and ". . . can therefore be charged to the original appropriations." The GAO report further references the DoD Accounting Manual and Air Force Regulation 170-8 as the policy basis for determining whether a charge is within the scope of a contract.

This letter notifies you and requests your review of our plan to restore $418 million from the expired/lapsed "M" account to be applied to the B-1B's ALQ-161A "core" program. This amount in addition to $109 million already restored would complete the entire "core" retrofit program during the next four years. In the near term, we intend to place $120 million on contract to complete the "core" full scale development and testing, to acquire engineering drawings for production, to retrofit aircraft two through nineteen to the common ECM configuration (Mod 0) and to buy long-lead items in support of fleet retrofit to the "core" configuration.

After successful completion of the "core" development effort, I intend to submit the test results per Congressional direction to an independent panel for validation. The Department will then present those independently validated "core" performance achievements to Congress and obligate the remaining $298 million, completing the retrofit of the entire B-1B fleet to the "core" configuration.

On October 31, 1989, Secretary Rice authorized the B-1B program access to $24 million in expired/lapsed funds to cover contract liabilities through January 31, 1990, to ensure the opportunity for further consultation with the Congress before a commitment was made to the full program. This consultation must now proceed in accordance with Section 121 of the Authorization Act and Section 9071 of the Appropriations Act. Since it is unlikely, because of the Congressional recess, that you can complete review of this package before Eaton contract funding is exhausted on January 31, it may be necessary for the Air Force to access $34 million of the requested funds ($418.0 million) to cover liabilities associated with the Eaton contract through March 1990.

This is a necessary interim step pending Congressional action on the full $418 million request.

A copy of this letter has been sent to the Chairmen and ranking minority members of the Senate Appropriations Committee and of the House and Senate Armed Services Committees.

Sincerely,

Dick Cheney

cc: Honorable Joseph M. McDade
Ranking Republican

REPROGRAMMING PROCEDURES

Mr. **Murtha**. The statement of managers accompanying the Fiscal Year 1990 Appropriations Conference Report directed the Department of Defense to use the normal prior approval reprogramming procedures when notifying Congress of its intention to use the funds for the B-1B ALQ-161A system.

Secretary Cheney sent a notification letter on January 24th, but the normal forms and procedures were not used. Why did the Department ignore the conferees' direction on this matter?

Mr. **Donley**. Mr. Chairman, from the Secretary of Defense's point of view, there are important reasons why this issue should be treated differently than a prior approval reprogramming. All the funds involved, both active and expired, are being applied from and to the same purpose for which they were proposed. From a very narrow legalistic point of view, it shouldn't be necessary to get approval to obligate funds that the Congress has already proposed, provided they are for the same purpose.

But having said this, Mr. Chairman, the Secretary of Defense has requested your views on this matter and Secretary Rice has made it clear that he wants to work with the Committees on this subject.

As a practical matter, we have chosen not to obligate funds when the 30 day window closed on the 24th of February, and we would appreciate the Committee's views on that subject before we proceed.

Mr. **Murtha**. Secretary Donley, let me say that I told Secretary Cheney this year that we were going to try to limit the number of general provisions in the bill. We were going to try to work these things out so there would be agreement between the Committee and the Secretary's office and we would try to do this without burdening the Defense Department with a number of requirements in the law.

We reduced our requirements substantially in the House. When the bill went over from the House, you remember we had substantially less general provisions. The Committee tried to stick to that with the Senate and there were a number of things the Senate wanted. We put a lot of these things in the statement of managers. We can go back to putting them in the law if it becomes necessary.

So, what we are saying to you, is that we hope we will be able to get cooperation without burdening the bill and the Department with having to put it into law. We hope we will be able to get an understanding by just saying either informally or formally, in the statement of managers that we would like to see it done this way.

In the end there is no way you can win. In these next few years there are going to be more and more changes and the changes are going to come dramatically. You can see where one committee of the four that authorizes and provides money is really causing you some great concern with your personnel problems, and you know, we want to be supportive and we want to work with you, but this M account issue gets very sticky with us. We want to be very careful we don't use the law from a technical standpoint to avoid our responsibility, and we don't want the Air Force to go back into accounts to this magnitude that are expired, and come back and say to us that is the way you are going to do it.

I am just advising you that we want to cooperate. We want to try to continue to reduce the amount of paperwork that we burden you with. But on the other hand, this Committee came to an agreement at the end of the year, it is a bipartisan agreement. This Committee will stick to its terms, to its agreement with you, the Defense Department, and other Services, and we expect you to also be cooperative.

So when you start getting into something as difficult to understand and as technically complicated as the M accounts it makes us very nervous, so we would expect the Air Force to listen to what we say in the statement of the managers, and pay attention or we will have to put it into law. So that is what it amounts to.

Mr. DONLEY. I appreciate the Committee's position on that. As the Committee addresses this issue so are the counsels. There is a slight disconnect here. As Secretary Rice indicated———

Mr. MURTHA. I hope you will take my message back. We can go one step further of putting it into law and then you will have no leeway. We are trying to work it out.

Mr. DONLEY. We have spent some time with your staff on Monday and I know that we will be spending more time with them in the future on this matter.

PURPOSE OF REPROGRAMMING

Mr. MURTHA. Let's talk about the substance of the issue. Talk about why you need this reprogramming.

Mr. DONLEY. Mr. Chairman, let me turn to General Yates and allow him to answer your question.

General YATES. Well, Mr. Chairman, as far as the necessity for the system itself, the ALQ-161, what we are trying to do now, and we know that you and the other members of the Committee are well aware of the problems we have had in the past on B-1 ECM, but what this series of modifications which we call the "Core", does, is focus on the critical or "Core" ECM capability of what we originally thought that we would have with the ALQ-161A. Additional funding for the radar warning receiver would provide the requisite situational awareness lacking in the "Core" effort.

Thus far we have completed ——— of the performance capability of the "Core". If we don't complete the current contract for this "Core" system, where we end up is we end up about—and again, this is just to give you a feel for this—we end up ——— in our performance capability against the threats countered by the ALQ-161A core. So we have got about ——— to go regarding performance capability against threat. But the big thing it does is it impacts our supportability of the systems that we already have in the field. If we were to stop now airplanes two through 19 would end up in a wide variety of configurations.

The central integration test system would not be completed, so we would not have good fault identification, and so basically, we would have a system fielded that was not maintainable. So that is why we want to keep this contract going. That is the operational imperative.

Mr. MURTHA. How much of the $120 million is strictly related to procurement, how much to correct deficiencies, and how much for full scale development, even though funded through a production contract?

Mr. Donley. Mr. Chairman, I can get those numbers for you. I believe it is divided about 50-50.

[The information follows:]

Only $48 million of the total $120 million is utilized to continue development to correct deficiencies in the ALQ-161A "Core". The remaining $72 million is used to complete the retrofit of aircraft 2 through 19 to a common configuration, fund nonrecurring production, and procure long-lead materials for subsequent production of the ALQ-161A "Core".

LONG LEAD FUNDING

Mr. Murtha. How much is for long lead material?

General Yates. I have that here, sir.

Mr. Murtha. We have a figure of $48 million for FSD and $18 million for long lead. Is that the same as your figures?

Mr. Donley. We have the same figure for long lead and the full scale development number is corrrect.

Mr. Murtha. When do you plan to obligate the long lead funding?

Mr. Donley. We will have a requirement for the long lead funding in approximately the June time frame as I understand it.

Mr. Murtha. If the test program is a failure and the contract terminated early next year, how much long lead material would be usable?

Mr. Donley. About 80 percent, Mr. Chairman. And among the spares that we are buying in with the long lead money, the components involved are applicable to the rest of the B-1 ECM capability.

Mr. Murtha. How many aircraft would be equipped with the core configuration for the test program?

General Yates. Only one.

Mr. Murtha. For the record, would you provide the detail by purpose and timing of the planned use of the $120 million?

[The information follows:]

The $120 million of expired or M account funds will be used exclusively on the production contract and includes all of the funds necessary to complete core efforts through the core testing period of August 22 to October 30, 1990. The Redball effort requries $33 million to bring aircraft numbers 2 through 19 to the common core configuration. Development efforts to continue correction of deficiencies will utilize $48 million. Additionally, several activities which must be undertaken to prepare for production will require $21 million. Finally, to meet the scheduling requirements and terms and conditions of the core contract, it is essential that $18 million be expended for the procurement of long-lead materials beginning in June 1990. These four items comprise the total $120 million.

Following the successful completion of testing and the verification of B-1B penetration capabilities through an independent assessment, the retrofit of the ALQ-161A "Core" will be accomplished at a cost of $298 million.

Mr. Murtha. Mr. Miller.

NUMBER OF B-1B AIRCRAFT

Mr. Miller. Thank you, Mr. Chairman. How many B-1Bs do we have now?

General Yates. Ninety-seven.

Mr. Miller. We are asking for enough avionics to change in 100 I noticed. That 100 figure was the original?

General YATES. Yes sir.

Mr. MILLER. We have lost three, so we do not need three of those changes in avionics, is that correct?

General YATES. The funding that we have that we have been asking for is for the fleet of 97 airplanes, so if there is a 100 number floating around, I don't want to let you think that we can reduce what we are asking for by some three percent. We can't.

Mr. MILLER. General, this is the third change that would have been made, as I understand it, and I have not checked with the Air Force, but I recall about five years ago we had the B-1 out at Andrews. It had flown to the Paris Air Show and at that time it had avionics in it that would need to be changed, and that in the production of the planes that were to follow the new avionics would be included.

Are we brushing up against something where we would make a third change and before we are finished with the 97 we find that we should make a fourth change?

General YATES. No, sir. I think your remembrance is pretty accurate. You know, we did make a change after the first 19 airplanes, and the other airplanes were in a lot better shape. But then subsequent to that, as we completed the testing on the program, we found that we could not ever achieve what we had set out to achieve with that configuration. This fixes that.

When we finish this, we will have brought all the airplanes up to the same configuration and they will all be in an operable condition.

The Congress has asked us to do, before we commit the bulk of these production funds, Congress has asked us to complete the test program, have that test program evaluated by an independent group, which we will do, and then come back over and ask for the production dollars. So you won't have to accept my word for it, you will know specifically that in fact this last change works.

Now, I have to tell you that by the nature of the business, ECM is sort of a spy versus spy type of thing. In the outyears there will be other changes that might occur in the threat, so you really never actually finish on ECM. But as we understand the threat today, this completes what we have to do to deal with what we know of the threat today.

If somebody fields a new missile system tomorrow, that would be a new ball game.

Mr. MILLER. Will we field as of today the state-of-the-art that is involved in this new system that you are talking about?

General YATES. Yes.

Mr. MILLER. But the state-of-the-art can change tonight. We can roll over and see where we would be better off with avionics that were developed after this change—so I guess there is no guarantee that there will not be a change in the technology for avionics that you may need on the B-1B?

General YATES. I agree with the thrust of your statement but I would like to get the thought of technology and state of the art out. We are not bumping up against per se state-of-the-art. In other words, it is not a technology barrier that we are worried about here. What I am talking about in a change is not a change in technology, but a change in threat.

What we are doing here is threat driven, not technology driven per se.

Mr. **Miller**. Are we in a meeting where we can discuss that threat?

General **Yates**. Yes sir.

Mr. **Miller**. Can you give us a little background as to why the major change would be made, according to what threat?

General **Yates**. When we started this out we were ambitious.

[**Clerk's note**.—Classified discussion removed.]

General **Yates**. He has to jam those, basically turn the jammer on and that is a manual function, and that is not the way to do business here. That needs to be automated and tied together.

So if you are looking for a number, I will do this, but it is not technically accurate, but I think you are asking for a feel. ———.

Mr. **Miller**. How do we stand, General, with what we are attempting to do, and what we should have done—was that not the state of the art back then, and we approved that, at least the Air Force did, DOD approved what was going into the B-1, and what you are talking about now, wasn't that understood or thought about or state of the art at that period of time? Why do we need to change now? If we need it now, didn't we need it back then?

General **Yates**. Yes, we did, and I think that we have been forthcoming in admitting to everybody that we fouled us up from the way we managed it. We basically went from an engineering development model, and before we had really made even prototypes we committed to production. So the test program had not been run when we started the production program.

That brings even new meaning to the word concurrency. So when we ran the test program, we found out it didn't work but we had the machines in production. So this is the tale of going back and fixing those machines.

Mr. **Murtha**. Is that on the record? This is the last tale?

General **Yates**. Mr. Chairman, I would like to relate back to my earlier statement that said when the threat changes the ECM system has to change, but for the current set of threats, last tale.

Mr. **Miller**. Do I still have time, Mr. Chairman?

Mr. **Murtha**. Go ahead.

B-2 AIRCRAFT

Mr. **Miller**. I am thinking about what we have now in the B-2, thinking about some of the problems and why this was necessary to do, and will we have the same thing in the B-2, or are we learning a lesson from the B-1 that won't follow through into the B-2?

[**Clerk's note**.—Classified discussion removed.]

General **Yates**. ———. Your question about have we learned our lesson, the failure here is the failure to properly manage the program, and we have learned that lesson. There were a lot of things that went into the considerations, the decisions that were made back in those days, but we would certainly not do such a thing today.

Mr. **Miller**. Thank you, General.

Thank you, Mr. Chairman.

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USE OF B-1B AIRCRAFT

Mr. **Murtha.** Let me ask you a question. ———.

[Clerk's note.— Classified discussion removed.]

Mr. **Murtha.** Mr. Sabo.

B-1 CAPABILITIES

Mr. **Sabo.** If the B-1 had to penetrate Soviet air space today, could it do so?

General **Yates.** ———.

[Clerk's note.— Classified discussion removed.]

General **Yates.** I would have to give you that for the record, sir.

[The information follows:]

Projected survivability is greatly effected by the assumptions used as entering arguments for the model employed as an analysis tool. The "Assessment of the Capability of the B-1B Aircraft to Penetrate Enemy Air Defenses" prepared by the Institute for Defense Analyses is one of the most comprehensive analyses of this difficult issue. ———.

Mr. **Donley.** I am not sure we have such a number.

General **Yates.** We have a number. It is a Top Secret number that would come out of the Single Intergrated Operational Plan.

Mr. **Sabo.** What are the changes in the Soviet air defenses that would make it more vulnerable into the century than now?

General Yates. ———.

Mr. **Sabo.** With the modifications, how survivable will the B-1 be by the end of the century?

General **Yates.** ———.

Mr. **Sabo.** Thank you, Mr. Chairman.

Mr. **Murtha.** Mr. McDade.

Mr. **McDade.** Thank you very much, Mr. Chairman. Welcome Both. General, I hear you are up for another star?

General **Yates.** Yes.

Mr. **McDade.** You have been in front of the Committee many, many times and we want to offer you our congratulations as well as our thanks for your service to our country.

General **Yates.** Thank you.

Mr. **McDade.** Mr. Donley, I want to urge you to convey to the Secretary the deep concern that the Chairman has already expressed to you. I want to underline that to you and let you know that it is a Committee position. We feel strongly that way on both sides, so convey the feeling that we don't feel good about it.

Mr. **Donley.** I understand, Mr. McDade.

CRUISE MISSILE CAPABILITY FOR B-1B AIRCRAFT

Mr. **McDade.** The 1990 Defense Appropriations Act, the law, requires that $50 million in R&D funding from fiscal year 1989 is available only, underline only, to carry out RDT&E to provide cruise missile capability for the B-1B.

Am I correct in my assumption that the Air Force is going to comply with the law as written?

Mr. **Donley.** Mr. McDade, you are correct that the Air Force will comply with the law, although the Air Force view—in the sense that that $50 million is fenced, no question—the Air Force view is that sufficient ACM testing has been done on the B-1 to date and that we need not proceed further until we are lead time away from a hard and fast requirement.

Mr. McDade. So your answer is that you are going to honor the legal requirement, but your question is whether or not it can be effectively expended on ACM modification?

Mr. Donley. That is correct.

Mr. McDade. How much have you spent to date on ACM integration of the B-1B?

Mr. Donley. I don't believe I have that with me today, sir, but we will be happy to provide that.

[The information follows:]

The Air Force to date has spent $309.2 million for ACM integration on the B-1B.

Mr. McDade. GAO has indicated to us that it is about $800 million.

General Yates. That is about right.

Mr. McDade. Not counting the $300 million spent on the program on integration.

Isn't it accurate there are no START implications with finishing testing only for B-1B ACM integration?

Mr. Donley. I am not sure that that is the case. That a matter of some concern within the DOD.

Mr. McDade. Do you think it might be a violation?

Mr. Donley. No, but I am not sure that there are not START implications of continuing to test.

Mr. McDade. Can you describe to the Committee what your concerns are now at this point?

Mr. Donley. I am not sure I am the proper official to do that.

Mr. McDade. General, are you able to give us an outline of the concerns?

General Yates. I have to also say I am not the right guy. ———.

Mr. McDade. Do you have any idea what the parameters of that decision are?

General Yates. ———.

Mr. McDade. Get a statement for us that will show us the parameters of the concerns, because obviously we want to see the finishing done, the testing as promptly as possible just for purposes of saving money, the problem we are having to try to figure how to save a lot of money, and if you finish it quickly, you save some money.

[The information follows:]

Currently, two B-1B bombers are considered cruise missile accountable aircraft, as defined by the joint draft START text, because of their association with Air Launched Cruise Missile (ALCM) and Advanced Cruise Missile (ACM) testing to date. Further ACM testing probably would not complicate the status of these two test aircraft. Of course, the Air Force wishes to preserve the B-1B as a penetrating bomber and has no current plans to deploy either ALCMs or ACMs on the B-1B.

The Joint Chiefs of Staff have certified military sufficiency under START due to our ability to carry large amounts of discounted bomber weapons. For example, a heavy bomber carrying only nuclear gravity bombs and/or short range attack missiles counts as one weapon toward the START 6000 weapon limit, even though it has the potential to carry more actual weapons. A U.S. heavy bomber carrying any number of treaty accountable ALCMs counts at 10 toward the weapons limit.

As a result, the United States Government has taken several steps to protect the entire B-1B force from being captured as an ALCM heavy bomber. The U.S. will conduct a B-1B exhibition prior to START Treaty signature to convince the Soviets the operational B-1Bs are not ALCM capable. The United States Government has also proposed that 20 heavy bomber test aircraft not count toward the START Treaty central limits, thus freeing our test assets for unrestricted testing with no operational impacts. Additionally, Strategic Air Command has stated that it has no operational requirement to employ ALCMs on the B-1B.

In summary, the principal reasons the B-1B cruise missile testing has stopped are several: the U.S. has no operational requirement to carry cruise missiles on the B-1B; more testing now would simply have to be redone if and when we are lead time away from cruise missile carriage because the B-1B is receiving an upgraded computer with the SRAM II that uses new software; and sufficient cruise missile testing has been conducted for both ALCM and ACM to provide requisite information should the U.S. later elect to employ the B-1B as a cruise missile carrier.

General YATES. We would not agree with that as a reason because we don't think that postponing the completion of the test is significantly different in cost than going ahead and doing it now.

Mr. MCDADE. Why is that? Usually we hear stability in programs, don't put us in a peak and a valley, et cetera.

General YATES. This is one of these things that you would do and set on a shelf and that is not normally what we ask you to do. Normally we ask you to fund something, we do it and make it operational then; we commence to use it, it is integrated into the weapon system. Every time we make a change it gets upgraded.

Here we complete testing and set it on the shelf. That software is over here, and some hardware, but let's think about it as software. The airplane continues to be used operationally and it is going to continue to evolve. We are going to change the software in the airplane as it goes along. We get down four or five years and reach back on the shelf and take this software out and try to plug it back in, it probably won't be what we want. We will have to go back and do another test program on it so we don't believe that it is an efficient thing to do to finish testing now and put it on the shelf.

Mr. MCDADE. That is very helpful to the Committee.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Young.

CONVENTIONAL WEAPONS

Mr. YOUNG. ———? For those of us who have been strong supporters of the B-1, we have always argued that it is a good strategic weapon but also a good conventional weapon. I want to make sure that the record reflects that we are not changing our mind on that subject.

General YATES. That is an error on my part. Clearly there is a large number of conventional targets that the B-1 is the appropriate choice for. That particular one in my view is not a good one.

Mr. YOUNG. It would be a good conventional weapon but this particular mission would not be a right mission for it?

General YATES. Yes, sir.

Mr. YOUNG. That is all I have.

I would like to submit the ALQ-161 questions for the record.

Mr. MURTHA. Without objection.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

CURRENT STATUS OF ALQ-161A

Question. Bring the Committee up to date on the current development status of the ALQ-161A. Include any significant milestones just passed, such as critical design review, along with any problems encountered therein; and significant milestones to come, such as deployment readiness review.

If we went to war today, how would the B-1B do against Soviet air defenses, and how will the scenario change if the proposed core modifications are successful?

Answer. Development of the ALQ-161A "Core" program is progressing satisfactorily. Eaton/AIL successfully completed the ALQ-161A "Core" Preliminary Design Review (PDR), delivered Block 4.01 software, completed the sixth Critical Design Review (CDR) panel on 23 February 1990, and has begun systems integration testing. The CDR was a solid engineering review of the designs Eaton/AIL intends to pursue to achieve the "Core" requirements. The CDR, to date, has identified only two minor discrepancies requiring further analysis; a fault isolation and an Radio Frequency (RF) bleed-through problem. By specification, the Central Integrated Tests System (CITS) must identify 95 percent of all possible failures in the ALQ-161A. Five of the ALQ-161A LRUs did not meet their fault identification allocations. A redesign to solve this problem is currently under investigation and will cause a six week delay in the flight test start date. Additionally, a corrective action has also been developed to eliminate the RF bleed-through problem. This fix will be incorporated if it is determined that bleed through has an adverse operational impact. A final CFR panel will be held in April 1990 to close these issues and complete the CDR prior to the start of core testing in August 1990.

Future significant program milestones include flight testing and the independent assessment of B-1B survivability. These milestones are on track and should provide the requisite information necessary to allow continuation of the core effort. Flight testing, scheduled for July through September 1990, will thoroughly ana- ent assessment will review the B-1B's ability to penetrate Soviet air defenses. In February 1991, the Air Force will also perform a Functional Configuration Audit to determine if the ALQ-161A "Core" is ready for production. ———.

[Clerk's note.—End of questions submitted by Mr. Young.]

Mr. Murtha. Mr. Wilson.

[Clerk's note.—Classified discussion removed.]

ECM PACKAGE

Mr. Wilson. We are reprogramming money to do the ECM package, right?

General Yates. Yes, sir.

Mr. Wilson. Are we confident that it is going to work?

General Yates. Sir, I did mention earlier—yes, we are, but I mentioned earlier that the law now says that you don't just have to take our word for it. We owe you, after the completion of tests, we owe you a—not only the reports on the tests, but we also owe you the results of an independent evaluation of that test and we will do all of that, and in Mr. Cheney's letter, he said that we would provide those to you before we ask you for the production dollars.

So, yes, we are confident that we will have to prove that to you and we are prepared to do that.

Mr. WILSON. How much money are we talking about here?

General YATES. The dollars that are tied up in that——

Mr. DONLEY. The remainder of the amount to be obligated in the M account is about $418 million.

Mr. WILSON. That is what it will cost for the R&D, the test model?

Mr. DONLEY. Yes, to complete the testing program and the production efforts.

Mr. MURTHA. We can do with $120 million, you can get by, do the testing and everything so $120 million is a critical part of the program?

Mr. DONLEY. Yes. That takes us through approximately February.

Mr. WILSON. This ought to take us where we want to go?

General YATES. Yes.

Mr. WILSON. Is Eaton still in business?

General YATES. Yes, sir.

Mr. WILSON. Are they going to do this?

General YATES. Yes, sir.

Mr. Wilson. Is it the Air Force's position that Eaton did not perform as they contracted to the first time around or is it the Air Force's position that we simply reached further than was reasonable to hope in the performance level of the ECM?

General YATES. Yes. Both.

Mr. WILSON. If everything works the way you hope, even with this, the ECM is not going to be quite what we had hoped?

General YATES. Yes, sir. It will allow us to counter the top ten threats to the B-1B aircraft. I am not going to lay this off to Eaton. It is us you appropriated the money to, it is our responsibility and we didn't manage it well.

Mr. WILSON. Did they not perform well?

General YATES. We did expect too much of them, but earlier we were talking about how we laid the program out and we laid the program out in such a way that it was not possible for us to know that the basic deisgn was flawed before we went to production. That is a management problem; that is not Eaton's problem. That is the Air Force's problem.

Mr. WILSON. But the B-1, if this works, the B-1 is going to be a very fine weapon for a very long time?

General YATES. Yes, sir.

Mr. WILSON. And it will be the second-best penetrating bomber in the world after the B-2?

General YATES. Yes, sir.

Mr. WILSON. It will have important applications?

General YATES. It will have a broad range of applications, yes, sir.

Mr. WILSON. One thing that I don't think our constituents and a lot of our colleagues understand is the broad range of conventional applications that the B-1 has.

Thank you, Mr. Chairman.

Mr. MURTHA. Thank you very much.

If there are no other questions, we will adjourn the hearing until 10:00 tomorrow morning.

Thank you very much.

THURSDAY, MARCH 8, 1990.

AIRCRAFT PROCUREMENT, NAVY

WITNESSES

VICE ADM. RICHARD M. DUNLEAVY, ASSISTANT CHIEF OF NAVAL OPERATIONS, AIR WARFARE, U.S. NAVY

LT. GEN. CHARLES H. PITMAN, UNITED STATES MARINE CORPS, DEPUTY CHIEF OF STAFF FOR AVIATION

VICE ADM. RICHARD C. GENTZ, USN COMMANDER, NAVAL AIR SYSTEM COMMAND

INTRODUCTION

Mr. MURTHA. The Committee will come to order. This afternoon we welcome Vice Admiral Richard Dunleavy, Lieutenant General Charles Pitman, and Vice Admiral Richard Gentz to discuss the fiscal year 1991 budget for Navy and Marine Corps aircraft procurement.

This year's request of $9,838.6 million represents a 5.8 percent increase in funding. For the aircraft production and remanufacture lines, the increase is about 14.2 percent.

There are no major new cancellations in the account this year, and the programs gapped last year—T-45 and SH-60F—are back in production in this budget.

Admiral Dunleavy, this is your first appearance before the Committee and we will put your biography in the record.

We know that things are going to change somewhat and we hope that we will be able to come up with the money to buy some airplanes. The Commandant seemed to have some interest in the V-22. We got the notion that he was interested in the V-22.

We have got some real problems over the budget this year, as you know. We appreciate your telling us what you would like to see happen, and then we will ask you some questions.

We will put your full statements in the record, and if you will, summarize it for us.

SUMMARY STATEMENT OF ADMIRAL DUNLEAVY

Admiral DUNLEAVY. Good afternoon, sir. I am Dick Dunleavy, Assistant Chief of Naval Operations for Air Warfare and the sponsor of aircraft procurement.

This is Lieutenant General Chuck Pitman, Assistant for Air Warfare, and Dick Gentz, the Commander of the Naval Air Systems Command.

We submitted our statements for the record and we will stand by to answer your questions.

[The statements of Admiral Dunleavy and General Pitman follow:]

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF

VICE ADMIRAL RICHARD M. DUNLEAVY

ASSISTANT CHIEF OF NAVAL OPERATIONS

(AIR WARFARE)

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

ON

AVIATION PROCUREMENT, NAVY

8 MARCH 1990

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

VICE ADMIRAL RICHARD M. DUNLEAVY

Vice Admiral Richard M. Dunleavy, a Boston, Massachusetts native, and a 1955 graduate of Boston College, serves as the principal advisor to the Chief of Naval Operations for all Naval Aviation matters.

An Officer Candidate School graduate, he was designated as a Naval Flight Officer, and served with Heavy Attack Squadrons One, Three, and Seven, deploying aboard USS ENTERPRISE (CVN-65) with the latter. In September 1964, Vice Admiral Dunleavy joined the staff of Reconnaissance Attack Wing One. After attending the Naval War College, he was assigned to Attack Squadron Eighty-Five, where he flew combat missions in Southeast Asia. This tour was followed by assignment to Air Test and Evaluation Squadron Five.

He reported to Attack Squadron One Seventy-Six in June 1971 as Executive Officer, assuming command one year later. After commanding Attack Squadron One Twenty-Eight, he was assigned to the USS KITTY HAWK (CV-63). In June 1976, he joined the Chief of Naval Operations' staff. He was Commanding Officer of the USS PONCHATOULA (AO-148), and assumed command of USS CORAL SEA (CV-43) in December 1979.

Vice Admiral Dunleavy was promoted to flag rank in July 1981, and was selected as Commander, U. S. Naval Forces, Philippines. After further service in the office of the Chief of Naval Operations, where he managed the effort to procure the carriers Abraham Lincoln and George Washington, he became Commander, Carrier Group Four/Commander Striking Force Atlantic. He subsequently served as Commander, Naval Air Force, U.S. Atlantic Fleet from December 1986 until May 1989.

The Navy League has recognized Vice Admiral Dunleavy with the John Paul Jones award for leadership excellence. His military awards include a Distinguished Service Medal, three Legions of Merits, eight Air Medals and four Navy Commendation Medals.

Vice Admiral Dunleavy is married to Sibyl Evelyn Blair of Miami, Florida. They have four sons -- Sgt. Richard M., USAF; Ensign Mark B., USN; Sn Matthew C., USN (Naval Academy Prep School) and David P. of Washington, D.C.

Report by VADM Richard M. Dunleavy
Assistant Chief of Naval Operations (Air Warfare)
on Naval Aviation Procurement for the Fiscal Year 1991

INTRODUCTION

Mr. Chairman and distinguished members of the subcommittee, I appreciate your invitation to present the Department of the Navy's plans for aircraft procurement for Fiscal Year 1991 and to update you on the significant programs which influence Naval Aviation's contribution to the military strategy of the United States.

BUDGET OVERVIEW

As we start the 1990s, Naval Aviation is embarking upon a critical modernization program necessary for the United States Navy to meets its global national security commitments into the 21st Century. The President's budget responds to this requirement in a measured and fiscally responsible manner.

The Aircraft Procurement, Navy (APN) request for FY 1991 is $9,839 million, an increase of $541 million over the level appropriated in FY 1990. By comparison, our FY 1991 request under the January 1989 Reagan budget of $11,369 million was $1,530 million higher. The decrease recognizes the fiscal realities we face. Production programs (A-6, P-3) were terminated in earlier years in anticipation of urgently needed replacement programs now in the President's FY 1991 request. These include the A-12, T-45, P-7A advance procurement, and remanufacturing F-14D and EA-6B aircraft to achieve modernization. The requested funds will procure 163 new and 15 remanufactured aircraft in FY 1991. These procurement levels, constrained by budget realities, will move toward alleviating long-standing Congressional concerns on naval aircraft shortfalls and aircraft modernization--although at a slower rate than previously anticipated.

NAVAL AVIATION AND NATIONAL DEFENSE

As a maritime nation and the leader of the free world, the United States is, of necessity, deeply committed to sea power for economic vitality and political stability. Globally, naval forces are the most visible reminder to our allies, friends and adversaries, of the United States' resolve to provide an umbrella of stability under which free world political and economic activity can flourish especially in these most fascinating yet turbulent times. The mobile and flexible forces of the Navy and Marine Corps contribute to global stability through their ability to confront potential aggressors and trouble makers with a broad range of military options--broad in geographic impact and capable of rapid response and measured intensity. Our Carrier Battle Groups and Marine Air Ground Task Forces will continue to be the most responsive, flexible and best prepared force, capable of reacting immediately, on a global or regional basis, from presence to low-intensity conflict through the entire spectrum of conflict.

The nation's diminishing access to foreign bases and overflight rights will limit forward basing and operation of U. S. military forces. Our nation will increasingly rely upon flexible and mobile naval forces to fill this vacuum in deterring adventurism and providing for regional stability. The untethered capability afforded by our naval forces allows for an enlarged role in supporting national counternarcotics operations and a leading role in detecting and monitoring the aerial and maritime transit of illegal drugs into the United States.

Carrier Battle Groups operate daily as they would in conflict--forward, with our allies, and near where potential adversaries must be deterred. Carrier Battle Groups operate worldwide with forces of our sister services and allies in maintaining necessary levels of readiness and training, not only to deter conflict but to fight and win, should deterrence fail. We exercise Naval Aviation in the environment and geographical areas in which confrontation would most likely occur. Carrier Battle Groups with long range, modern, air arms can deploy for as long as necessary and fight at whatever level of conflict the situation demands. Naval forces can affect world events quickly and decisively, and once political or military objectives are realized, rapidly withdraw without leaving a ripple in the water.

Carrier-based aircraft, in conjunction with shore-based maritime patrol aircraft, provide controlled mobility and flexibility with global reach. Air power adds speed and additional reach in a multi-dimensional (surface, subsurface, land, air) warfighting environment. Carrier aviation can conduct offensive and survivable operations against targets ashore, afloat, or under the sea with the capability of rapid revisit. The ability of carrier-based aviation to employ the vast array of sensors and weapons required for successful antisubmarine and electronic warfare makes for an unmatched force multiplier. This concentrated offensive and survivable air power is an effective and highly visible deterrent which operates freely, independent of foreign shore bases, political constraints and the sovereign claims of other nations.

Unmanned air vehicles, cruise missiles, and other systems will develop as complements to air power at sea, but none will take the place of aircraft where precision and man in the loop targeting is critical. When it becomes necessary to wrest and maintain air dominance over a battle space, when a quick, decisive strike is called for on short notice, when it becomes necessary to deliver heavy volumes of ordnance on a repetitive basis, when it becomes necessary to combat high speed, multi-threat and versatile undersea forces, there is no substitute for air power at sea.

For the present, our technological edge, better training, tactical initiatives and innovations, combined with the exceptional quality of our people, have given us the advantage. Because potential adversaries, especially in the Third World, are fielding improved and sophisticated weapon systems in every category, there is justification for Naval Aviation to modernize in a balanced manner to maintain an effective combat capability within the limits of affordability as proposed in this budget.

NAVAL AVIATION PRIORITIES/ISSUES

The FY 1991 budget request will keep strong and flexible Naval Aviation forces on-station and fully ready to meet any commitment. Our top priorities are people, readiness, safety, and modernization for a balanced force structure.

People Programs. Maintaining adequate levels of motivated and well-trained personnel to man Naval Aviation is my highest priority. They are the heart of our capability, now and especially for the future. The American white hat and junior officer are the ultimate force multiplier over any potential adversary; however, only well-trained and motivated personnel can maximize the use of the sophisticated weapons needed to wage modern warfare. We must continue to preserve the pilot training rate, the flying hour program, and technical training programs in order to meet commitments and retain our best people.

Our FY 1991 budget request reflects the FY 1990 ship and squadron manpower at the 90 percent level, with zero growth in shore-based billets. Additionally, movement toward a better balance of sea duty tours and shore duty assignments has been delayed. If further manpower reductions are mandated, our ability to bring new weapon systems on line safely, efficiently, and effectively and maintain our perstempo goals, will be constrained.

In an environment where manpower is stretched thin, retention has historically suffered. Retention of experienced officers and petty officers is fundamental to readiness, economy and safety. Experienced personnel maintain and operate complex weapon systems more effectively, resulting in improved readiness and safety. Retention reduces training cost. In the case of pilots, these costs are dramatic; it costs up to $1.25 million to train a fleet-ready carrier aviator.

Our recent experience indicates the Aviation Continuation Pay (ACP) Program, complemented by the recent increase in Aviation Career Incentive Pay (ACIP), appears to be successful; however, it is too early to assess the impact of ACP and ACIP increases on aviator retention. If additional incentives are required for the nation to retain the proper number of aviators in the Naval service, we will request them.

Growth in high tech industry means our well-trained officers and petty officers are highly sought after in the civilian sector. The Department of Education estimates the number of male college graduates nationwide in 1990 will decrease by 3 percent over 1986 levels making increased recruiting difficult. It is absolutely necessary that military salaries and benefits remain competitive.

Readiness. Readiness must be maintained for maximum sustained warfighting capability. It is penny wise and pound foolish to reduce short-term readiness. Naval Aviation, the essential component of American sea power, must remain capable of keeping conflicts small in geography, time and intensity to avoid escalation. Today, forces on station are ready. This was demonstrated when Iranian warships and gunboats were put out of action in April 1988, when two attacking Libyan MIGs were downed in January 1989, and when responding to the natural disasters of Hurricane Hugo and the San Francisco earthquake. Increased use of Naval Aviation in the fight against illegal drugs is a mission which we take seriously. We strongly support that effort and attempt to maximize readiness and training opportunities afforded by that mission.

To ensure our crews remain ready, the President's budget will keep flying hours at the minimum standards required for safety and readiness. It will provide required training for aircrews at rates needed to maintain squadron readiness. It will provide for shore-based support infrastructure which protects the material readiness of carriers and aircraft while emphasizing safety, reliability, and maintainability in operations.

Balanced Forces. We must continue to provide a balanced Naval Aviation force structure which is optimized and modernized across all mission areas. The current fiscally constrained force structure of 14 deployable Carrier Battle Groups, 13 active and 2 reserve carrier airwings, three active and one reserve Marine Corps airwings, and the requisite number of maritime patrol squadrons and ASW helicopters provide the warfighting capability to execute the CINCs' war plans.

Modernization. Naval Aviation's modernization plan is both evolutionary (F-14D, EA-6B ADVCAP, S-3B, E-2C, AV-8B Night Attack) and revolutionary (A-12, ATS, NATF), applying the latest technology to achieve superiority and survivability against sophisticated threats. We will capitalize on what Naval Aviation does best while integrating the strengths of sister services and allies. We will increasingly develop standoff weapons and electronic warfare systems as force multipliers. Through commonality and modular design, Naval Aviation will continue to consolidate the number of different aircraft and weapon types to save manpower and support costs.

Safety. Naval Aviation has just completed its second safest year in history. The calendar year 1989 rate was 2.35 mishaps per 100,000 flight hours with 52 Class A mishaps. This compares to 1988's record low rate of 2.16 and 46 mishaps. Continued command leadership and proactive awareness at the operator level is a proven method toward ensuring safe and successful conduct of operations in our inherently hazardous profession. Our success is due to the cumulative effects of adequate flight hours and spare parts funding in past years which facilitated aircrew training. But we are not content to rest with low mishap rates. We still had 52 too many mishaps.

FORCE MODERNIZATION AND STRUCTURE

It is essential to gain maximum benefit from each budget dollar; therefore, improvements and added capability are limited to only those necessary to improve safety, meet operational requirements, extend service life, enhance survivability, and improve maintainability through reduced costs and lower manpower requirements. Maximum competition, block upgrades, optimum use of acquisition streamlining, maximum standardization and commonality, remanufacturing in lieu of procurement and Weapon System Improvement Programs (WSIP) are all being used to ensure scarce resources are wisely allocated. We are participating, whenever possible, in joint-service development programs. For example, Navy is firmly committed to joint demonstration and validation of the Navy variant of the Air Force's ATF.

Aircraft Carriers. Last year's decision to maintain 14 deployable Carrier Battle Groups was based on affordability and considered a prudent risk to support our peacetime deployment commitments. The long range management plan encompasses new construction, complex overhauls (COH), nuclear refuelings, and Service Life Extension Program (SLEP). When USS ABRAHAM LINCOLN (CVN-72) joined the fleet in November 1989, the USS CORAL SEA, our "Ageless Warrior," had completed her final deployment and is scheduled for decommissioning on 30 April 1990.

USS MIDWAY continues to operate in the Western Pacific, fulfilling the nation's commitments to our allies and assisting in our necessary Indian Ocean presence. The Secretary of Defense recently announced that USS INDEPENDENCE (CV-62) will replace MIDWAY in FY 1992, which maintains our presence in support of our Pacific Rim partners.

The nuclear refueling and complex overhaul of USS ENTERPRISE, which begins in 1991, is a smart business decision which will ensure a front-line nuclear aircraft carrier (CVN) for an additional 20 years at a reduced cost compared to a new construction replacement.

Carrier Airwings. The Navy's requirement for 13 active and two reserve airwings supports our current 14 deployable carriers, one of which will be in a nuclear refueling overhaul for the foreseeable future. Our two reserve carrier airwings continue to modernize and are readily available in case of national crisis.

Strike Aircraft. The A-12 is a revolutionary concept which will improve our all-weather attack capability by orders of magnitude. As Naval Aviation's top warfighting priority, it will become the primary strike platform of the Carrier Battle Groups and provide a quantum improvement in survivability and operational effectiveness over the A-6. This vital tactical platform will be able to penetrate even the most heavily defended enemy areas to reach its targets. The A-12 is a tactical aircraft of strategic value, a high leverage platform across multiple mission areas. The Air Force has joined us in the development of the A-12 and is defining a variant for their use.

Until all medium attack squadrons are A-12 equipped, we will continue to operate the long range, all-weather, A-6 Intruder. As an interim measure to ensure its survivability in the near term, we are modifying the A-6 under the System/Weapon Integration Program (SWIP). SWIP and block upgrades will permit a greater stand-off capability and reasonable survivability with HARM, HARPOON, Infrared and Laser MAVERICKS, SKIPPER and SLAM (HARPOON variant), and various reliability, maintainability, and survivability (Integrated Defensive Avionics Programs (IDAP)) improvements.

The F/A-18 strike fighter with its versatility, reliability, and survivability will be the workhorse of carrier air wings well into the 21st Century. Upgrades to the radar, engines, weapon system, and "under the weather" capability will further expand mission potential. We are actively pursuing some of these upgrades with our allies to potentially reduce development costs. The FY 1991 request is for 66 aircraft.

The AV-8B Harrier program has been restructured over the past several years to represent a solid balance between fiscal resources and requirements. Operational experience with the AV-8B has shown the airframe to be reliable, maintainable, and capable of substantial growth. Night attack capability, an upgraded engine, and perhaps a NATO cooperative radar in the future will allow the AV-8B to more effectively accomplish its missions over a broad spectrum of operational and threat scenarios.

Amphibious Forces. The V-22 Osprey was terminated in the Revised FY 1990/91 budget. The FY 1991 budget submission contains initial funds to upgrade our medium lift capabilities relative to those inherent in the current force of CH-46s. In response to Congressional direction, the Institute of Defense Analysis (IDA) is conducting an independent Cost and Operations Effectiveness Analysis (COEA) on the V-22 and other possible alternatives to satisfy the over-the-horizon medium lift assault requirements (MLR) for the Marine Corps.

ASW Aircraft. Naval Aviation is a key element in antisubmarine warfare (ASW), the Navy's number one warfighting priority. The Soviet Union's numerical superiority in submarines requires the use of Naval Aviation as a force multiplier in the form of sea-based antisubmarine aircraft and land-based maritime patrol aircraft, specifically designed for the primary mission of dominating enemy submarine forces. ASW aircraft, such as the S-3B, SH-60B/F, and P-3C, are the key to effective, coordinated ASW linking surface, subsurface and air elements through an increasingly sophisticated communications network. ASW aircraft are highly responsive, rapidly redeployable weapons platforms possessing the capability of simultaneous track and attack of multiple targets. They can quickly reposition sensors and respond rapidly to long range ASW cues for either successful prosecution or false target elimination. Additionally, aircraft can provide the frequently decisive element of battle--surprise. Our procurement plan is in concert with the ASW Master Plan.

The P-7A Maritime Patrol Aircraft (MPA), formerly called the Long Range Air ASW Capability Aircraft (LRAACA), equipped with the Update IV avionics system, is the planned replacement for our aging P-3s. As we intend with all modernization efforts, the P-7 will be less manpower intensive and more economical to operate. The P-7 will provide much greater payload, longer range, higher transit speed, and survivability improvements which enhance all MPA mission areas, ASW, ASUW, long range surveillance and over the horizon targeting. Recent contractor announcements concerning the P-7 program are currently under assessment. We are pressing ahead in P-3C modifications by requesting funding needed to meet an increasingly sophisticated submarine threat through avionics system upgrades.

We are continuing to procure modernization kits for the S-3B WSIP. During its first operational commitments, the S-3B was highly effective and demonstrated excellence in all mission areas, clearly attesting to the benefits of a successful modification program. With the important role the aircraft now plays in the EW, ASUW, and airborne tanker roles, in addition to its primary mission of ASW, the S-3B has become a fleet workhorse. Unfortunately, affordability has reduced the rate of S-3B kit procurement and delayed program completion until 1996.

FY 1991 is the first year of the SH-60 multi-year contract approved by the Congress last year. The six SH-60Bs will help fill inventory requirements on LAMPS MARK III ships and the 18 SH-60Fs will allow timely replacement of the carrier-based SH-3s which are reaching the end of their service life. Both programs are on track and performing well. The SH-2 will continue to be modernized to enhance its effectiveness in both the active and Naval Reserve forces.

Air Dominance

The Navy must have the capability to establish dominance over certain ocean areas when needed. Naval Aviation is working in conjunction with other warfare sponsors to implement an Anti-Air Warfare (AAW) Master Plan that provides a fleet-wide assessment of force AAW capabilities vis-a-vis requirements into the early 21st Century. The purpose is to identify methods of making existing systems work best in coordinated operations and to outline RDT&E and procurement priorities for the next several years. In view of the Soviet's Naval Aviation developments at sea and proliferation of sophisticated technology to Third World countries, the AAW Master Plan provides a roadmap to meet those emerging threats.

Our procurement strategy includes no new F-14D procurement after FY 1990 but continues with the program of remanufacturing F-14A aircraft to the F-14D configuration in FY 1991 along with continued development funding for elements of the Pre-Deployment Update (PDU) program. This approach is the most cost-effective method to achieve an all F-14D force. Twelve conversions are requested in this budget. Incorporating new high performance engines, a state-of-the-art digital radar, and new digital avionics, the F-14D will pace the threat and ensure continued outer air battle superiority to the Carrier Battle Group.

The Navy is working closely with the Air Force and its contractors in demonstrating and validating a carrier-based version of the Advanced Tactical Fighter (ATF) as a follow-on to the F-14D near the turn of the century. The Navy is fully committed to this program.

The F/A-18 continues to fulfill superbly its multimission requirements, including attack, fighter escort and short to mid-range intercept, as F-14 augmentation in the outer air battle. The capability to perform both strike and fighter missions allows the Carrier Battle Group Commander unparalleled flexibility in configuring the Hornet as battle situations change. The digital weapon system of the F/A-18C yields greater combat effectiveness by including the capability for AMRAAM and ASPJ. Development funding requested for the radar upgrade is absolutely essential.

The E-2C weapons system update program continues to be highly successful. Our FY 1991 request for six E-2Cs will continue to satisfy fleet inventory requirements. Wing crack repair programs are on schedule with only 18 aircraft, compared to 26 last year, grounded for wing cracks. All are now in the repair pipeline. Full APN-5 modification funding (APN-5), as requested, will maintain the Navy's plan on track.

Electronic Warfare

As sophisticated electronic technology spreads into the Third World, so must the electronic combat systems supporting tactical air forces and carrier battle groups. The EA-6B remains the primary platform for suppression and degradation of enemy defense systems by tactical jamming and counter-target jamming support for battle groups and Marine Corps forces. Because of affordability, additional EA-6B new procurement was terminated in FY 1990. This will necessitate careful management of our assets until arrival of the Advanced Tactical Surveillance (ATS) System. As a warfighting requirement, the EA-6B will be remanufactured into the Advanced Capability (ADVCAP) configuration starting this year.

The ES-3 modification program continues to progress at an accelerated pace to replace the few remaining EA-3B aircraft. The test article aircraft flew on 7 September 1989.

Advanced Tactical Surveillance (ATS). ATS is being developed to perform the battle management, surveillance, and multi-dimensional warfare missions currently accomplished by aircraft such as the E-2, S-3, and EA-6. An independent study by the Center for Naval Analysis was directed by Congress last year. That concept study is currently in progress. ATS is conceptualized to be a common airframe and engine with mission specific varients. It is expected to encompass a common baseline avionics architecture which allows the integration and exploitation of a multi-spectrum sensor suite, common signal/data processing hardware and software, standard DOD data bus structure and reconfigurable controls and displays.

Training. As Naval Aviation fields the most sophisticated and capable weapon systems in history, training for both the operator and maintainer becomes even more important. Training gives us the edge in readiness for combat. Training includes flight hours, classrooms, training support equipment, facilities and targets, adversary aircraft, simulators, training devices and adequate Temporary Additional Duty (TAD) funding to accomplish available training. Technology now allows simulators which replicate both real world threats and our own weapon system capabilities. The initial training in the operation and maintenance of complex weapon systems is best and most economically conducted first in simulators. It is absolutely essential that training devices and simulators be funded parallel with new aircraft systems and modifications and that they arrive before the delivery of the first aircraft or modification, not after.

The T-45 Training System, and I stress system, consists of the T-45A "Goshawk" jet trainer, state-of-the-art visual and instrument simulators, computer based training integration system (TIS), computer aided instructional devices, academics, courseware, and contractor logistics and maintenance support.

The first two flight test aircraft were accepted by the Navy in 1988 and were used for initial operational and developmental flight testing during November 1988. During this initial flight testing, deficiencies were discovered in lateral and longitudinal stability, engine response and total engine thrust, speed brake operation, and several ergonomic factors. We are working closely with the contractor, McDonnell Douglas, in designing and testing appropriate fixes. Improvements in all areas have been noted by both contractor and Navy test pilots. A slip in Initial Operational Capability (IOC) of September 1990 is likely, but I do not see a major impact on the ability to meet pilot training requirements.

Aircraft Modifications. The FY 1991 request is $1,135 million and reflects the funding for installation of aircraft modifications on a full-funding basis in accordance with the policy change directed in the FY 1990 Appropriations Act. Modernization, as reflected in the APN-5 account, provides us with the safety, reliability, enhanced warfighting improvements critical to force modernization.

Aviation Support Equipment

Our request for support equipment in FY 1991 is only slightly increased over the amount appropriated last year. The appropriations provided from FY 1984 through FY 1988 have been dedicated to fully outfitting our deployable carriers. Full funding as requested in FY 1991 is needed to provide continued support of Consolidated Automated Support System (CASS) production, CV replenishments, required support equipment for aircraft procurement, and the replacement of obsolete equipment.

CASS development is on schedule and will complete FSED this fiscal year and is essential for the support of the A-12 and all future aircraft and avionic systems. CASS offers a significant savings in manpower, training, support equipment, operating cost, space, and combat readiness.

READINESS AND SUSTAINABILITY

The FY 1991 budget is balanced to sustain the high state of day-to-day readiness required by Naval Aviation tactical forces through prudent investments in training, personnel, and material support programs.

Flying Hours - An Imperative for Fleet Readiness. The standard readiness indicator for the flying hour program is the primary mission readiness (PMR) attained by warfighting units (TACAIR/ASW). For each type aircraft, a pilot needs to be trained in various mission skills--skills which must be continually renewed for proficiency. Through experience, we have determined the average number of hours per month required to achieve and maintain these skills and fighting spirit. Our budget development process is designed to identify the minimum funding levels necessary to provide the flight hours to maintain crew readiness. The FY 1991 budget request is sufficient for us to achieve 85 percent of that level through flying and an additional two percent PMR through the use of simulators. The planned 87 percent PMR is short of our peacetime goal of 88 percent. We know that further reductions will result in a loss of readiness, a reduction in safety, and a decline in pilot retention.

The average TACAIR/ASW crew flies 25 hours per month. We believe this reflects the absolute minimum for retention of critical combat flying competence, comfort, and confidence. Air wings preparing for deployment and those already deployed are accorded priority for flight time while those returning receive less. It must be emphasized that the opportunity to fly is critical in the retention of aviators. We are closely monitoring readiness indicators as Naval Aviation's contribution to drug interdiction increases and capitalizing, when possible, on training and readiness opportunities.

Airspace. Another separate, but related, issue is the availability of adequate Special Use Airspace to maintain Naval Aviation readiness. Special Use Airspace is essential for attaining acceptable flight crew proficiency across the full spectrum of warfare, for developing and evaluating airborne tactics, and for testing and evaluating advanced technology aircraft and weapon systems. Low observable and terrain hugging aircraft, high-speed missiles, and over-the-horison standoff weapon systems and tactics are but a few examples of added capabilities that increase required air and sea space.

Continued emphasis on joint operations, while appearing to provide relief, actually places additional demands on airspace size and frequency of use. Available airspace is under increasing pressure from commercial air, economic, political and environmental sources. Each source is represented by special interest groups which compete with military interests. The Navy is faced with the dilemma of requiring increased airspace to support emerging capabilities, while current trends are reducing and restricting available area usage which places readiness at risk. We are seriously working at solving the myriad of attendant problems, but I would much appreciate the Members' understanding of our dilemma.

Aircraft Material Readiness. While many factors, including personnel, training, general logistics support, spare parts, and depot rework funding all affect material readiness, the primary indicator used to measure aircraft material readiness is the Mission Capable (MC) rate. The MC rate goal is 73 percent, which was achieved in FY 1988. Due to fiscal constraints and in order to maintain program balance, funding in areas affecting MC rate have decreased since FY 1987. The result was expected to be a decline of about one percent per year in the MC rate. The FY 1991 MC rate is projected to be 70 percent which tracks with our projections and is acceptable considering the fiscal and political climate.

Aviation Spares. The FY 1991 aviation spares account has been pared to bare minimum requirements and represents our best efforts at a balanced approach within the limits of affordability. We plan to procure 100 percent of engine spare parts requirement, which directly affect Mission Capable rates. We plan to procure 70 percent of avionics system's repair parts which has a direct affect on Full Mission Capable rates but does not adversely affect Mission Capable Rates. As in recent years, reduced funding for spares will require intensified management efforts that may include increased cannibalizations, additional "crossdecking" of assets, off-ship requisitions, and increased maintenance man hours.

WEAPONS DEVELOPMENT/PROCUREMENT

Power projection is carrying the fight to the enemy and putting ordnance on target. Sufficient quantities of practice ordnance are essential to accomplishment of that objective. Skills must be maintained on a continuous basis during peacetime. Although increased weapons procurement in recent years has all but eliminated the requirement to cross-deck weapons on deploying combatants, we still have not completely filled the resupply pipeline and forward prepositioned inventories of the more sophisticated weapons like HARM and HARPOON. However, we believe the quantities reflected in the FYDP reflect an acceptable risk in this revolutionary and fiscally constrained environment.

Several weapons are worthy of special mention because of their contribution to warfighting enhancements. We are proceeding with the development of the AIM-9R as a top priority. It features an improved capability in clutter and a significant counter - countermeasure capability. As we modernize our air-to-ground capability by increasing our standoff delivery capability, we increase aircrew survivability. Continuing the development of AAAM, AMRAAM, Standoff Land Attack Missile (SLAM) and the Advanced Interdiction Weapon System (AIWS), we are necking down the different types of weapons in the fleet while providing target discrimination with man-in-the-loop capability.

Previous increased Congressional funding for sonobuoys will help meet inventory requirements and future consumption requirements for ASW training while sustaining war reserves. The FY 1991 request has been reduced to the lowest prudent level. Even though expenditure rates may exceed FY 1991 procurement quantities, accumulated inventories will continue to support the ASW operational tempo in the near term, and we accept the balance between associated warfighting risks and available fiscal resources.

Our air-launched training ordnance has been reduced to the absolute minimum with acceptable risk of ordnance delivery readiness. Since readiness typically lags this investment by several years, the full impact of reduced funding is not readily visible. Only one-third of fleet requests for live ordnance training is approved in order to avoid erosion of war reserves. The most optimistic future outlook rests on the Advance Bomb Family (ABF).

SUMMARY

As a maritime nation, sea power is essential to our national objectives. Naval Aviation adds dimensions to sea power that are not available from other means. Naval aircraft provide reach, flexibility, versatility, speed, and concentrated firepower. They are quickly reloadable.

The FY 1991 budget request emphasizes people, readiness to respond, and force modernization which will allow Naval Aviation to continue meeting national commitments. Since 1945, successive presidents during crises and conflicts have always asked, "Where are the carriers?"

People must always remain our top priority. Our people ask for very little. They willingly deploy throughout the world, enduring six-month separations from their families and friends on a routine basis. They do so from a deep sense of commitment and love of country. We must return their commitment and devotion to duty with adequate pay and benefits, and a consistent personnel/ operational tempo. These things are critical to protecting our national investment in a ready Navy.

We must likewise provide sufficient funds to maintain a balanced naval capability centered on at least 14 deployable Carrier Battle Groups. Our Carrier Battle Groups are the centerpiece of our naval capability because they represent the most effective and complete way to establish and maintain control of the seas and, when necessary, project power at sea and ashore. There is no substitute for them in peacetime or conflict. In order to pace the emerging threats of the coming century, we must introduce the technologies represented in new weapons systems, such as the A-12.

Naval Aviation makes extraordinary contributions to national security. The continued support of Congress in protecting our investment in modernization and balanced force structure, coupled with the dedication of our courageous professional Sailors and Marines, will ensure our continued strong contribution and steady course.

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BY HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF

LIEUTENANT GENERAL C. H. PITMAN

UNITED STATES MARINE CORPS

DEPUTY CHIEF OF STAFF FOR AVIATION

BEFORE THE

SUBCOMMITTEE ON DEFENSE

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

CONCERNING

NAVY AIRCRAFT PROCUREMENT

ON 8 MARCH 1990

NOT FOR PUBLICATION UNTIL RELEASED
BY HOUSE APPROPRIATIONS COMMITTEE

LIEUTENANT GENERAL CHARLES H. PITMAN, USMC

Lieutenant General Charles H. Pitman is the Deputy Chief of Staff for Aviation, Headquarters Marine Corps, Washington, D.C.

Born in Chicago, Illinois on October 20, 1935, General Pitman enlisted in the Naval Reserve in October 1952, and subsequently enlisted in the Marine Corps. Entering flight training as a Naval Aviation Cadet in 1954, he received his wings in August 1955, and joined Marine Helicopter Transport Squadron 363, Santa Ana, California. The following January, he deployed to the Pacific Proving Grounds, where he served for seven months aboard the USS BADOENG STRAIT (CVE-116).

Returning to the United States in September 1956, he was transferred to the Marine Corps Auxillary Air Station, Mojave, California, where he performed duties as airfield operations officer, search and rescue pilot and Provost Marshal. In January 1958, he returned to Pensacola for jet transition. Upon completion, he was assigned to the Multi-Engine Training Group as a flight instructor. He was later assigned as officer-in-charge, Third Cadet Battalion, U.S. Naval School, Preflight.

Following his promotion to captain in January 1960, General Pitman attended Photographic Reconnaissance School, then transferred to El Toro, California, where he was assigned to Marine Composite Reconnaissance Squadron 3. In November 1962, he deployed to VMCJ-1, flying the RF-8 and EF-10 on reconnaissance missions throughout the Far East.

Returning from overseas in November 1963, he joined VMCJ-2 at Cherry Point, North Carolina. A year later, he was assigned as Aide-de-Camp to the Commanding General, 2d Marine Aircraft Wing.

He was promoted to major in 1966, and reported to Marine Medium Helicopter Squadron 261 at New River, N.C., for duty as operations officer and then executive officer, flying the CH-46. Leaving in November 1966 for Vietnam, he served initially as maintenance and later as operations officer in HMM-265 at Marble Mountain, Phu Bai and Khe Sahn.

He transferred to Washington, D.C., in February 1968, for duty as a weapons systems analyst in the Office of the Chief of Naval Operations (OP-05W), where his assignments involved evaluation of tactical air capabilities, both U.S. and foreign. While assigned to OPNAV, he returned to Vietnam in October and November 1968 to evaluate several new airborne detection systems.

In January 1970, he attended the Armed Forces Staff College. Graduating in June, he transitioned to the UH-1, and attended the Army's Cobra School. By then, a lieutenant colonel, he returned to Vietnam, where he commanded Headquarters and Maintenance Squadron, flying UH-1s and CH46s. While transitioning to the CH-53, he was wounded while flying in Laos as part of Operation LAM SON 719. After being stabilized at Kuhe Hospital, Okinawa, he was evacuated to the Naval Medical Center, Bethesda, Maryland.

After recovering, he assumed command of Marine Air Reserve Training Detachment, New Orleans, in July 1971, again flying the CH-46. He held this assignment until leaving to attend the Air War College in June 1973. In conjunction with this assignment, he completed his B.S. degree in Business Administration at Troy State.

Transferred to Headquarters Marine Corps in May 1974, he served two years as Aviation's Program Coordinator. After being promoted to colonel in October 1976, he served two years with the Secretary of the Navy's Office of Program Appraisal.

General Pitman transferred to Okinawa in July 1978, where he assumed command of Marine Aircraft Group 36. The following year, he returned to Washington where he was assigned as Marine Corps Aide to the Secretary of the Navy, and later as the Marine Corps Member, Chairman's Staff Group, Office of the Chairman of the Joint Chiefs of Staff, as his advisor on the Middle East, Africa, South/Central America, Counterterrorism and the Rapid Deployment Joint Task Force.

In June 1981, General Pitman assumed duty as Commanding Officer, Marine Aviation Training Support Group, Pensacola, Florida. While serving in this capacity, he was selected for promotion to brigadier general. He was advanced to that grade on May 11, 1982 and assigned duty as the Assistant Chief of Staff, C-5, ROK/U.S. Combined Forces Command in Seoul, Korea.

In August 1984, he returned to the 3d Marine Aircraft Wing, MCAS El Toro, California, where he served as Assistant Wing Commander until advanced to major general in April 1985. He then proceeded to Okinawa, Japan, where he commanded the 1st Marine Aircraft Wing from June 12, 1985 until his transfer to Headquarters, Marine Corps on Sept. 9, 1987. He then served as Assistant Deputy Chief of Staff for Aviation until assuming his present position on May 1, 1988. General Pitman was advanced to lieutenant general on July 7, 1988.

His personal decorations include: the Silver Star Medal; Defense Superior Service Medal with bronze oak leaf cluster in lieu of a second award; Legion of Merit; Distinguished Flying Cross with gold stars in lieu of second, third and fourth awards; Bronze Star Medal with Combat "V"; Purple Heart; Defense Meritorious Service Medal; Air Medal with gold Numeral 3 and bronze Numeral 62; Navy Commendation Medal with Combat "V"; the Vietnamese Cross of Gallantry with silver star; and the Korean Order of National Security Merit, Cheonsu Medal.

Lieutenant General Pitman is married to the former Shaunee Smith of Springfield, Colorado. They have two sons, two daughters and three grandchildren, residing in Virginia, Florida and Alabama.

Mr. Chairman; Distinguished Members of the Subcommittee:

I am pleased to have this opportunity to discuss Marine Aviation and to present our plan for aircraft procurement for fiscal year 1991. Our request is not ambitious, nor is it austere. It is a balanced program of new procurement and modifications to existing systems designed to meet our operational requirements.

For the past several years, our focus has been to procure systems that were intended to meet the threat of Third World instability, illegal drug trafficking, terrorism, and regional war. The events in the Philippines, the Persian Gulf and Panama have increased the demands on our preparedness and our capability in responding to a broad spectrum of operational scenarios. These events have increased our dependence on precision, surprise, and night operations.

The Commandant of the Marine Corps is steadfast in his requirement for a total force whose elements are complementary in their capability to operate across a broadening spectrum of requirements. The baseline requirements are the 18 missions that are integral to the Marine Expeditionary Units and which, by extension, also apply to larger Marine Air Ground Task Forces (MAGTFs). To achieve that capability in a declining budget, we are modernizing the aircraft in the inventory and replacing those that are incapable of being modernized to meet the threat or to support the missions of our Marine Air Ground Task Forces.

Today, more than ever, our emphasis is on low- to mid-intensity conflict. Successful mission execution depends heavily on mobility, rapid response, bold action, and effective use of environmental factors such as darkness and weather to our advantage.

The fiscal year 1991 program is designed to continue our progress toward realization of those warfighting goals with balanced modernization and enhancements across all aircraft communities and mission areas. Our contingency planning stresses night and adverse weather operations.

Naval Forces have met our Nation's expeditionary needs throughout our history, and we continue to emphasize the expeditionary capabilities that make our Marine Corps capable of forcible entry and sustained operations ashore at long ranges. Renewed calls for withdrawal of U. S. Forces from overseas bases underscore the increased demand that will be placed on sea-based forward deployed--rather than forward based-- forces.

Although peace may be breaking out in Eastern Europe, events in other parts of the world serve as reminders that the outbreak of peace in one area of the world is not necessarily contagious. The oceans that insulate beleaguered peoples from the peace process are the same oceans that isolate struggling governments from those who are willing to lend assistance. If the peace process is to succeed, Naval forces must maintain the capability to influence the action through judicious application of conventional forces capable of power projection.

The Marine Corps has a hard earned reputation for frugality in maintaining a potent fighting force. For a small portion of the Defense budget, the Marine Corps provides a major contribution to our overall defense. Our aviation program is lean, and there are no frills. It is tailored to meet our minimum requirements in order to execute our missions. But our requirement for resources becomes more acute as we defer needed improvements into the outyears under the mistaken perception that we will get well later. For us, the outyears have arrived. We seek your support in attaining those resources that are essential to maintain our strength and readiness.

With those thoughts in mind, I would like to address some specific aspects of Marine Corps Aviation's fiscal year 1991 request and to articulate our plans for the future.

ASSAULT MEDIUM LIFT

Although our FY 91 request is modest, this is the most important item in our request. Since 1978 successive Deputy Chiefs of Staff for Aviation have emphasized the need to replace our fleet of CH-46Es and CH-53 A/D helicopters, and that need is more critical now than ever. Our medium assault helicopters are the very heart of Marine Air Ground Task Forces. In maneuver warfare, they provide the vertical dimension to the battlefield and are one of the commander's true maneuver elements. They provide the vast majority of our Marines with the tactical mobility they require on the modern battlefield, while also functioning as primary movers of equipment and logistics support.

We are awaiting the results of the Congressionally mandated Cost and Operational Effectiveness Analysis before we make any decisions on specific aircraft for this critical mission area. We do know, however, that, regardless of the selected alternative, the solution must be a fully capable combat aircraft with state-of-the-art communication, navigation, and defensive systems.

There is a common perception, in some circles, that inexpensive rotorcraft are available today and that these aircraft can fulfill the requirement for military applications. While this perception may have been true in the past, it is no longer the case if the aircraft is designed to be more than just a flying truck. Today's and tomorrow's combat aircraft, fixed wing and rotary wing, will be faced with far more sophisticated adversary systems and increasingly complex missions even in the Third World and in terrorist encounters. The next generation of medium assault rotorcraft must be capable of operating in the same environment as our fixed wing aircraft, especially at night and in adverse weather. In order to do this, and to survive, our aircraft must have technologically modern systems, including self-contained navigation systems, integrated night cockpits, self-protective armament, and designed-in survivability.

A replacement for our medium assault fleet will be expensive in today's fiscal environment, but we are continuing to reduce the number of type/model/series of aircraft ("neck down") in an effort to keep our overall force affordable. Additionally, we are seeking a solution that will be more than a short-term fix. The technology is at hand that will allow us to develop aircraft and systems that will carry us well into the next century.

Our medium assault replacement will take that fact into account. Upon completion of the on-going COEA, we will take a very close look at candidate systems and assess their combat worthiness, operating costs, manpower impact and potential for enduring service. Experience has very graphically demonstrated that planning for a 20 year service life for our rotorcraft is optimistic. We must give stronger consideration to solutions which will remain viable for the 25 to 30 years that has become the norm.

NIGHT AND ADVERSE WEATHER ENHANCEMENTS

The night belongs to the attacker. This well known dictum of warfare is as true today as at any time in history. For several years, the Marine Corps has been developing systems and equipping aircraft to take advantage of the night. Our approach has been to modify existing airframes to develop an aviation force capable of meeting the requirements of our supported units.

During the last calendar year, we stood up our first AV-8B Night Attack Squadron at Yuma, Arizona. The Night Attack Harrier incorporates forward looking infrared (FLIR), a moving map display, night vision goggles, a night cockpit and an improved heads up display that allows the pilot to navigate and to locate targets while flying close to the ground. I am confident that the Night Attack Harrier will provide the MAGTF a much needed capability to conduct effective close air support at night, under the weather.

The Night Attack system was developed to provide a much improved capability at reasonable cost. It does not obviate the need for a radar, and we are still optimistic that the radar system will prove an affordable option.

With relatively simple and inexpensive subsystem improvements we can reduce the need to buy new aircraft and extend the life of those in the inventory. This practice has brought us close to where we want to be, and with your continued support these modifications can be completed.

The Night Targeting System (NTS) for the AH-1W Super Cobra is one example. Operationally, NTS expands the capabilities of the AH-1W to provide precise close-in fire support and assault fire suppression 24 hours a day.

The system provides greatly enhanced night operations by incorporating a forward looking infrared sensor with multiple fields of view, a laser target designator, and a laser range finder. It allows nearly autonomous operations for the AH-1W and greatly improves weapons accuracy, while providing pilots with visual cues necessary for earlier target detection and navigation. NTS is also designed to reduce maintenance requirements when compared to our existing system.

NTS is a cooperative program with the Government of Israel, and we are pleased to note that the program is ahead of schedule and under cost. Your support of this vital program, and of the AH-1W program in general, has led to potential Foreign Military Sales to several of our allies.

There are two programs under way to give the F/A-18 a true night/all-weather capability. The first is the upgrade for the APG-65 radar, and the second is the addition of software improvements that will incorporate the Radar Beacon Forward Air Controller (RABFAC) feature which is currently in our A-6Es. RABFAC gives us the all-weather capability to deliver close air support. These programs are particularly important as we transition our all-weather attack squadrons from the A-6E to the F/A-18D.

The Helicopter Night Vision System (HNVS) will provide an integrated night cockpit, forward looking infrared, and an Integrated Helmet and Display Sight System (IHADSS) for the CH-53 series aircraft. HNVS offers a marked improvement over current visual systems and will measurably reduce pilot workload by integrating navigation information with other cues.

Similar modifications are in progress on two of our other assault support aircraft--the C-130 and the OV-10. Due to the higher priority given to upgrading the helicopter fleet these programs are proceeding more slowly than we would like, but we are firmly committed to modernization of these key aircraft.

Technology alone cannot solve all of the problems associated with fighting at night and in adverse weather. Therefore, Marine Aviation is committed to modifying our training and, where necessary, our doctrine in an effort to further enhance our capability. We are seeking hardware solutions only where training cannot overcome our deficiencies. Daylight, fair weather conflict is a high risk proposition in today's sophisticated weapons environment.

READINESS AND SUSTAINABILITY

Some will argue that, with the apparent decline of the Soviet threat, we cannot justify maintaining such a high state of operational readiness as we have in the past. Others will say that, while the threat level may have decreased, we cannot afford to drop our guard. I must cast my vote with the latter group.

We have found from hard experience that it is much more difficult--and more costly--to regain military capability than it is to maintain it. I do not suggest that we ignore the changing world climate, but we must remain combat ready.

There is little question that, as the Nation reacts to the rapidly changing world situation, some force reductions will be necessary. Whatever occurs, MAGTFs must be in a position to act, rather than react, to any crisis with a fully capable Aviation Combat Element. Unrest in the Third World, persistent terrorism, and the seemingly ever-present scourge of drug trafficking continue to threaten U. S. interests at home and abroad. These factors require that we maintain a high state of readiness.

Our Commandant's emphasis on Special Operations Capable MAGTFs to meet those challenges is stronger than ever. Consequently, the demands of training and the requirement to keep our equipment ready has not diminished. Flying hours for aircrews, steaming hours for ships, spares and repair parts for equipment must be viewed as an investment in capability--not simply as an expenditure of resources.

The potential for conflict--albeit on a smaller scale--still remains. Missions such as the evacuation of embassy staffs, protection of vital facilities, or isolation of forces hostile to a friendly government will require that future missions be carried out with precision. To accomplish these missions, our aircrews need adequate flight time for training, and our maintenance personnel need the parts to repair their equipment.

We are beginning to see the results of earlier decreases in spare parts funding. There has been a slight, but noticeable, decrease in aircraft readiness over the past several years. Much of this downward trend is attributable to a 2.5% increase in the Not Mission Capable, Supply (NMCS) rate.

The problem is worse, of course, for some of our older airframes. In some cases, suppliers have gone out of business. In others, vendors have stopped making specific parts because there isn't enough demand to justify continued production. This situation places an increased demand on some of our depot maintenance activities and has the potential to drive readiness even lower.

Our request is designed to maintain the current level of 25 hours per crew per month, not to spend at increasing rates when the top line is declining. The aircrews who are flying 25 hours per month this year need to fly at the same rate next year if they are to maintain reasonable proficiency. Our request for spares also supports this goal.

ORDNANCE

Another factor in the readiness and training equation is the availability of ordnance, not only for contingency but for training as well. Through your past support we are getting caught up in our non-nuclear ordnance requirement for machine gun ammunition, but there are areas where we are falling farther behind. Shortfalls in some of our missile and rocket programs are in the thousands, and in the case of 2.75" rockets the shortfall is approaching 200,000 rockets.

These inventory shortfalls do not account for training requirements. Although we have made considerable progress in substituting simulator training in lieu of some training ordnance expenditures, it is not necessarily effective to follow a similar practice with all types of ordnance. This is especially true in the case of some of the so-called "dumb" weapons.

Because such weapons are not precision guided, aircrews and ordnance handling personnel must train with live ordnance. It is the only effective way to learn handling, delivery and performance characteristics of these weapons. Our request reflects a compromise among competing budget priorities and does not fully meet our overall requirement.

AVIATION SAFETY

Although 1989 was the second safest year in Marine Aviation history, we are not satisfied. Our mishap rate last year was 3.52 per 100,000 flight hours, up from 2.68 in 1988. Aircrew error continues to be the single most significant factor in aircraft accidents. Analysis of mishaps over the past several years indicates that many are caused by a breakdown in coordination among crewmembers in multi-piloted aircraft. In response, we have instituted a program to improve aircrew coordination at all levels in the training pipeline.

The program is very similar to that used in the commercial sector to train airline pilots. Although it's too early to measure results, I feel strongly that this dedicated training program will pay big dividends in the future.

New procurement and aircraft modification are also part of the solution. As we continue to develop our special operations capability, and as we increase the degree of difficulty in mission execution, our hardware must be updated to match the requirements levied on the aircrews. I firmly believe that the night/adverse weather enhancements mentioned earlier will have a beneficial impact on our mishap rate by reducing aircrew workload, even under our most demanding mission profiles.

AIRCRAFT PROGRAMS

F/A-18 HORNET. The F/A-18 has proven itself to be an extremely effective multi-mission weapons system. It provides a quantum leap in operational flexibility by incorporating a state of the art air-to-air and air-to-ground capability in a single platform. This increases its mission effectiveness and overall utility while reducing the requirement for dedicated single-mission aircraft.

We are continuing to develop and refine the expeditionary qualities of the Hornet. Concept development is underway to conduct F/A-18 operations from forward operating bases in much the same manner as the AV-8B. When married up with new, portable arresting gear, the F/A-18 will be capable of operating from expeditionary surfaces less than 2000 feet long. Coupled with its increased operational reliability, the aircraft is capable of increased sortie rates where those sorties are most needed--just behind the front lines.

Although we do not have any F/A-18 squadron's deployed aboard aircraft carriers today, the capability to do so provides additional flexibility and gives us an important link with our Navy squadrons. This interoperability gives the National Command Authority and the CINCs a true force multiplier because it enables them to stage Naval squadrons ashore or augment carrier air wings from shore-based assets.

Following last year's Congressional direction, the Marine Corps began transferring its A-6s to the Navy in anticipation of receiving the F/A-18D. That transition has begun with the introduction of the two-seat variant into the Fleet Refresher Squadron, VMFAT-101. We will deliver aircraft to our first tactical squadron, VMA(AW)-121, during the third quarter of this year.

The Department of the Navy request for 66 F/A-18s in FY 91 includes approximately 25 aircraft for the Marine Corps. Of that number, 12 will be the two-seat D model. With your continued commitment to this program, we will transfer our last squadron of A-6s to the Navy in 1994 and complete our transition to the "D" in 1995.

AV-8B. Fiscal Year 1991 is the last year of a three year multi-year procurement for the Harrier. Your steadfast support of this vital program has maintained Marine aviation's lead in VSTOL development and operational employment. Completion of the FY 91 program will bring our total procurement to 276 of the 323 aircraft we require for the active force.

I ask your continued support in our program to replace the existing engine with the -408 engine. Progress on the engine test program has been good, and the results are very encouraging. We plan to begin installing the new engines later this year, as aircraft come off the assembly line. We will then retrofit existing aircraft as soon as possible.

The Department of the Navy is conducting negotiations with the Governments of Italy and Spain to explore foreign military sales of a radar equipped variant of the Harrier. The discussions are proceeding, and the prospects look very favorable. When consummated, the agreement will give us the option to forward fit radars into the remainder of our multi-year procurement (MYP) aircraft, as well as any further procurement.

We consider this option extremely important. The AV-8B is the only U. S. tactical fixed wing aircraft produced in the last ten years which does not have a radar. The decision to forego the radar in the early stages of the program was a prudent one at the time, owing to affordability. Now, with routine shipboard deployments, and with increased emphasis on night and adverse weather operations, the radar variant is more important than ever.

CH-53E. The FY 91 request for 23 heavy lift CH-53Es will bring our procurement to date to 135 aircraft, measured against our requirement of 191. The Marine Corps is thoroughly committed to meeting the procurement objective. As the only heavy lift option capable of meeting our operational requirement, the CH-53E has proven to be a vital element of our assault support fleet.

The uncertainty of varying annual quantities has provided us with little bargaining room, and I feel strongly that this system is a prime candidate for multi-year procurement. Such a plan would almost certainly give us the leverage we need at the bargaining table to reduce the cost of these aircraft.

EA-6B (ADVCAP)/RF-4B. The program to remanufacture and update the EA-6B to meet the current and projected electromagnetic threat is another example of Navy/Marine Corps co-development. The FY-91 request for three aircraft begins the process of modernizing our aging force. Our long-term objective is for one active squadron of 18 aircraft and a reserve squadron of six aircraft.

Unless this program continues, the Marine Corps will be faced with a declining inventory by 1996, through normal attrition. As the only dedicated electronic warfare platform in the Marine Corps' inventory, the EA-6B is absolutely essential to the conduct of operations in the current and future threat environments.

We are continuing to retire our only squadron of RF-4B tactical reconnaissance aircraft. The retirements will be complete by the end of FY 91, and the mission will be assumed by F/A-18s using the Advanced Tactical Aerial Reconnaissance System

(ATARS) when that system comes on line.

AH-1W. Although the AH-1 model aircraft has been in operation for over 20 years, the "Whiskey" is, in all respects, a new aircraft with impressive versatility. Your support of this comparatively inexpensive program has provided us with an agile and supportable platform that performs a myriad of assault support missions.

Its ability to employ mission-tailored weapons (TOW, HELLFIRE, SIDEARM, SIDEWINDER, rockets and 20 mm cannon) has piqued the interest of several of our allies. The AH-1W has received considerable interest in the foreign military sales market and has the potential to significantly increase our interoperability with other nations. The addition of the Night Targeting System will increase that potential even more while providing a significant night fighting improvement.

This program experienced some significant problems a few short years ago, but those problems are behind us. The program has gone from one that was almost inexecutable to one that is now almost 200 days ahead of schedule and gaining.

RESERVE AVIATION

Our Reserve aviation component is healthy and contributes significantly to our overall mission effectiveness. The Reserves train and operate with the active force on a daily basis, both in the U. S. and abroad. Your Marine Corps is committed to ensuring that its Reserve component remains fully effective as an integral part of our total force.

The past year has seen the transition of a Reserve fighter squadron to the F/A-18A at El Toro, California, and the initial standup of our second KC-130T squadron at Stewart International Airport, New York. As a result of your actions last year, the procurement of two more KC-130Ts will continue our efforts toward our goal of two KC-130T squadrons for the Reserves.

The funding provided for six AH-1Ws in the NGRE account will allow us to replace our VietNam era AH-1J, which has no credible anti-armor capability. It will also help us reduce the number of type/model/series aircraft we are required to support. More importantly, continued Reserve modernization will provide us the opportunity to more fully integrate the capabilities of our Reserve force with the active component, streamline our training programs, and enhance the Commandant's commitment to total force compatibility.

COMMAND AND CONTROL

Although our Command and Control systems are not counted in the APN account, I think that it is important to mention them briefly. The aircraft systems you provide for us through continued appropriation cannot be totally effective without adequate means for command and control. Our programs in this mission area are not growth programs. Our efforts are aimed at replacing obsolete technology with systems that are compatible with the increased sophistication of the aircraft and missiles in today's inventory, while simultaneously increasing our tactical mobility and reducing its footprint.

Many of our programs are carried out with the other services in order to realize the economies associated with cooperative development and to reduce support and operating costs. We also will reap considerable operational benefits by increasing the level of interoperability among the services and with our allies.

PILOT RETENTION

We have a shortage of qualified aviators. We have been able to reduce the severity of this problem through a program of aviator conversions and transitions among aircraft communities and increased productivity in our Fleet Refresher Squadrons. Admittedly, these are short term solutions, so we must continue to explore options to reverse the current trend.

We continue to attract sufficient numbers of qualified applicants. Your efforts to help us achieve a longer range solution through increased compensation and adequate flight time should significantly improve the situation over the course of time.

CONCLUSION

Marine Corps aviation, in the aggregate, is healthy. However, I cannot overemphasize the seriousness of our medium lift shortfall. We are prepared to move out smartly when we have the results of the COEA. This program is our Commandant's, and my, number one priority.

We are fully cognizant of the fiscal environment that we face, and we understand that not all of our problems can be solved by throwing money at them. The reduction of aircraft type/model/ series has our continued attention and effort.

Naval Aviation remains one of the most flexible, responsive and versatile weapons in the U. S. arsenal. When coupled with its supported forces, Naval Aviation's ability to be anywhere, anytime to carry out U. S. policy is unrivaled. Our presence is a clear signal to our friends and to potential foes that our commitment is strong and enduring. Perhaps more importantly, Naval Aviation can carry out its missions without dependence on host nation support or overflight rights and without the operational encumbrances that often accompany such second party agreements. Yet, if the situation should call for support from shore based facilities, Naval Aviation offers that option as well.

Your Navy and Marine aviation forces have carried the flag to every part of the world, in peace and at war. We remain committed to that challenge today as much as at any time in our Nation's history. We are on station 24 hours a day, every day, and we will be ready whenever the call comes.

Mr. Murtha. Mr. McDade.

Mr. McDade. Thank you, Mr. Chairman.

Let me add my welcome. Welcome, Admiral, on your maiden voyage in front of the toughest committee in the Congress. You look like you can handle it. Do you think you can?

Admiral Dunleavy. No problem.

V–22 OSPREY

Mr. McDade. Let's talk about the V–22, since the Chairman has indicated the interest the Commandant has expressed, recognizing that you are under certain obligations to support certain items in the budget. Nevertheless we will ask your personal, professional opinions as we go through the questioning for establishing the record.

In December the Navy was directed to cancel the existing V–22 advance procurement contract. Is it true that the cancellation cost the Navy over $130 million.

Admiral Gentz. I will try to answer that for you, sir.

Mr. McDade. Personal, professional opinion, you know.

Admiral Gentz. In fact, that cancellation will cost. Obviously we have certain options under the contract which would be difficult to reinstitute and the end result of that will be a stretch in the program, sir.

Mr. McDade. Is it true that cancelling the advance procurement contracts could add up to a billion dollars to the total cost of the program if indeed it were decided that the program ought to continue?

Admiral Gentz. Yes, sir. I think with the lengthening of the program, that with escalation, a billion might be a reasonable number.

Mr. McDade. It might even be more than a billion dollars?

Admiral Gentz. We haven't tried to estimate that.

Mr. McDade. They tend to get bigger, don't they?

Admiral Gentz. In a hurry.

Mr. McDade. How many hours has the aircraft flown?

General Pitman. Ninety-four flights, 78.4 hours. Aircraft number one and number two were supposed to fly today, but they could not because of bad weather in Fort Worth.

Mr. McDade. Any problems that you have noticed in the performance of the aircraft in the flights that have occurred?

General Pitman. No, sir. Performance is very good. It is not perfect yet as in any test development program.

From our standpoint, having been there the day before yesterday, looking at the aircraft, and going over all of the details, I am convinced that there is a very low risk technical fix to everything they have found so far.

Mr. McDade. No major glitches?

General Pitman. No, sir.

Mr. McDade. As far as you are concerned in your professional opinion, it looks like the aircraft is flying according to expectations?

General Pitman. Yes, sir. It has already flown at 280 knots. It has been over 10,000 feet, pulled two and a half G's, and on the

Saturday before last, all three aircraft flew the same day. The fourth one should fly later this month.

Mr. McDade. What R&D efforts remain to be done and what will the costs be for the remaining R&D?

Admiral Gentz. We are continuing the FSD program as it was currently structured, funded only through the $255 million that was left in the fiscal year 1990 bill. That is leading through DT-IIB. There will be two DT periods that we will have an opportunity to look at. DT-IIA, which will begin shortly, providing the government pilot evaluation on flying quality and performance at Fort Worth, and later DT-IIB with some Naval Marine aviators in there and 20 flight hours at Pax River to verify what General Pitman discussed as far as the contractor-derived data. We also hope to get in ten flight hours of ship board compatibility.

We will be finishing up the $255 million out of FY 1990 that remains.

Mr. McDade. That end cost is the balance of the two?

Admiral Gentz. Yes, sir. The last funding was in fiscal year 1990.

Mr. McDade. You have drawn down 1990, did you say?

Admiral Gentz. No. Those funds were fiscal year 1990 funds and those are what we are using up, sir. We will finish the expenditure of those funds.

General Pitman. Additional R&D is required if we are going to complete the development. There is nothing in the budget—we can give you that estimate, but I don't have it with me.

Mr. McDade. Do you have a ballpark?

General Pitman. Around $200 million a year depending on whether we were going into production or not. There is a different set of criteria. If you are going into production, it is one set of figures and another set if production is not anticipated.

Mr. McDade. Give us the figures for the record.

[The information follows:]

The V-22 OSPREY has been in flight test since the first flight of aircraft #1 on 19 March 1989. Six Full Scale Development (FSD) aircraft have been built and aircraft #1 through #4 are in flight status. Aircraft #5 and #6 are in final assembly and are scheduled to be flown later this year. Approximately 4,000 hours of flight test are required to complete flight testing which includes the mission and specification compliance of the aircraft. This is scheduled to take place over the next two years. The two funding lines below indicate the total requirement for RDT&E funding necessary to complete the V-22 FSD test program under two options; Option (a) with production or Option (b) without follow-on production. ($ in Million)

Option (a):

Required RDT&E funding to complete FSD with follow-on production:

FY 1991	FY 1992	FY 1993	FY 1994	Total
238.0	143.0	20.6	11.1	412.7

Option (b):

Required RDT&E funding to complete FSD Testing without production:

FY 1991	FY 1992	FY 1993	FY 1994	Total
170.3	118.7	7.0	0.0	296.0

ALTERNATIVES TO V-22

Mr. McDade. Tell us how much money you have in fiscal year 1991 through 1994 for alternatives to the V-22, and tell us what are those alternatives.

General Pitman. Yes, sir. We are looking at a number of alternatives. The only one proposed as a result of the decision to terminate the V-22 was a mixture of H-60s and CH-53s.

Congress directed that we do a study to look at all alternatives to see which one would be more cost effective over time. That study is ongoing. Although the initial reports have been put together, it won't be completed until June.

The aircraft that we are looking at include mixes of CH-60s and CH-53Es with the proper equipment incorporated to make them more survivable in the 21st century. We are also looking at a stretched CH-60 and the CH-47, both derivatives of Army aircraft, again with modern equipment. Additionally, we are looking at a follow-on aircraft to our current CH-46. It would be a modified aircraft with all of the latest avionics equipment. The EH-101, a European development, was also considered to see if it might provide a reasonable alternative.

The MV-22 and these alternative aircraft are being analyzed at this time by IDA. Meanwhile, the Medium Lift Replacement, or MLR, is part of our POM 1992 development which we are working diligently within the DOD.

In 1991 there is $51.0 million R&D for the MLR. Additionally from 1991 through 1994 through the end of the program, the DOD plans to buy 23 CH-53Es per year to solve part of the lift problem created with the termination of the V-22 program.

Mr. McDade. What is the cost of procuring those?

General Pitman. Around $460 million at 23 a year including initial spare parts.

Mr. McDade. I am trying to get the procurement costs. Were you giving operating costs?

General Pitman. No, sir, that is the procurement cost per year. The aircraft sells for about $20 million a copy.

Mr. McDade. Is that half a billion dollars every year from 1991 to 1994?

General Pitman. Yes, sir, and that doesn't complete the program.

Mr. McDade. How much of it is left?

General Pitman. It runs out about three more years, sir.

Mr. McDade. Have you captured operating costs?

General Pitman. No, sir. The study took that into account and looked at all the various costs.

Mr. McDade. So when you get that you will be able to look at the comparative operating costs?

General Pitman. Yes, sir.

Mr. McDade. When do you have to make a decision to buy the additional aircraft?

General Pitman. Soon. The CH-46 is reaching the end of its service life.

Mr. McDade. Was that first half billion in the budget?

General **Pitman**. Yes, sir, in the 1991 budget along with $51 million R&D to do the lighter version. In other words, if you are going to have a mix, whether it is a H-60 or CH-46, there is $51 million in the R&D account for fiscal year 1991.

Admiral **Dunleavy**. That COEA study won't be completed before June.

Mr. **McDade**. When will you get us your first hot answer over here?

Admiral **Dunleavy**. As soon as it is finished, we will have it here.

Mr. **McDade**. We might have to have it sooner, even though you haven't printed it or got all the signatures. When it comes time for this committee to start making decisions we are going to have to have the benefit of your——

Admiral **Dunleavy**. I understand.

Mr. **McDade**. Thank you.

Mr. **Murtha**. Mr. Dicks.

COST AND OPERATIONAL EFFECTIVENESS OF V-22

Mr. **Dicks**. I know there is an inherent problem here because this is funded out of Naval aircraft and that there is always some dynamic tension here.

Let me ask you this. General, are you satisfied with how this study is going? Are we going to get a fair study or are they stacking the deck against us in this study.

This committee added language to try and do everything possible to get a fair study, but I keep hearing that they are doing things in this study that are aimed at stacking the deck against V-22. What can you tell us about that?

General **Pitman**. Early on, we felt the same way and at that time we found some initial judgments being made that we considered biased.

However, when these issues were brought before the steering group, which we participate in, in every case, a reasonable and fair decision was made. The last time we reviewed the study was only a week ago. At that time, everything looked in order.

Mr. **Dicks**. There is a rumor that they are trying to double the cost of the V-22 in the study and even then it still comes out that the V-22, when you look at the cost of ownership over a period of time, even with that double-inflated cost it is still more cost effective.

Are they trying to double the $20 million price here? Are we getting a loaded deck from Mr. Chu and the people that brought us this the first time?

Can you tell us categorically that the doubling is not true?

General **Pitman**. No, sir. We felt there were some errors in the operating cost figures on the V-22, and that maybe it was somewhat higher than it should have been.

Mr. **Dicks**. It isn't the cost of the airplane, it is the cost of ownership that you have a quarrel with them about?

General **Pitman**. It was operating costs and it was a matter of judgment. We have addressed those area where we have had a difference of opinion and they are being worked out satisfactorily.

Mr. **Dicks**. So, so far you can tell us that it looks like we are going to get a fair study?

General **Pitman**. Yes, sir.

Admiral **Dunleavy**. The Navy and Marine representatives in the study indicate—preliminary indications are that we are going to get a fair shake on it.

Mr. **Dicks**. We have a great deal of respect for Mr. Cheney, but are we going to make a decision that is fundamentally wrong simply because the Secretary got the wrong advice at the start of his time as Secretary of Defense. We feel here that especially with a changing world situation that, in fact, it is the things like the V-22 that we are going to need in the future. As we look at Special Operations Forces and all the things that this airplanes is capable of dealing with, this is the kind of weapon we ought to be buying. When you look at cost of ownership of helicopters and personnel associated with it, especially at a time when we are being forced to come down on manpower, this decision doesn't make any sense.

I guess the real problem here is the cost of the initial procurement. Isn't that the problem?

General **Pitman**. That was certainly the problem that the Secretary faced last year and will continue to face because new production is expensive up front. Any new aircraft will have an up-front cost higher than an older, less sophisticated type.

Admiral **Dunleavy**. It is a requirement, and in the Navy and Marine Corps, it is a high requirement. It also has applicability to the Navy combat search and rescue mission as well as applications for the Air Force.

From our perspective, it was an affordability issue at the OSD level and caused cancellation. I think that your charging the Department of Defense to come up with an independent study to answer your questions will validate the requirement.

The affordability issue is unanswered.

Mr. **Dicks**. I understand that this would have more implications for the Navy in terms of ASW. Is that a valid part of the requirement? Does it have greater range and capability than, for example, the LAMPS helicopter and could be used in an ASW capacity?

Admiral **Dunleavy**. Missionwise, we are delighted with its capability. We question whether we have the advanced ASW suites to put in the back end to give it the leap forward in submarine-killing capability we want.

From the blue-suit side, the requirement is more for the combat SAR mission. In the strike rescue mission we think we are at a significant disadvantage at the present time.

Mr. **Dicks**. We are looking forward to the study. If it was just an interim set of conclusions—I think the committees here will need this before we have our markups and both the Armed Services Committee and the subcommittee are going to need that study as soon as possible. So try to push to get it done, because I think the Congress deserves to have it in a timely way.

E-6A PROGRAM

You have had some tail problems with the E-6A. I was involved very heavily in that effort to get a new upgraded TACAMO. I am told that they now feel that they have a fix that will work, but what does the Navy think?

Admiral **Dunleavy**. The potential fix is in place. In fact, we have four aircraft flying in the fleet today permanently stationed at Tinker AFB and forward deployed from there.

From an operational perspective, the E-6A is coming along on time.

Admiral **Gentz**. We are hoping that Boeing is going to be able to tell us how they suggest that the tail flutter problem be fixed in April. We are getting very quick updates on the progress.

Of course, the second tail that was lost was instrumented heavily and they understand exactly how it came apart. They are trying to not have the fix in the tail get transmitted into other parts of the structure. So they are still working on that.

The limitations on the mission now don't cause any difficulty in the current operational mission.

Mr. **Dicks**. So you can still operate it. It is just that you want to get it fixed?

Admiral **Dunleavy**. It is an angle of bank limitation which does not affect the overall mission. We have five flying versus four.

Mr. **Dicks**. We need a new airplane, as somebody who flew in the C-130s.

Has the Navy accepted delivery of any of the E-6A aircraft, and if yes, are aircraft operations in any way restricted?

Admiral **Dunleavy**. Yes, sir. We started with the five. They are deployed now and the limitation is 375 knots which doesn't get it there quite as fast.

It also has an angle of bank limitation which dictates to the pilot to be careful how he flies the profile. The limitations are livable and are not having an operational impact on the mission.

Mr. **Dicks**. Has the Navy reached an agreement with the contractor concerning responsibility for paying for the corrections required to prevent damage during normal operations?

Admiral **Gentz**. No, sir.

Mr. **Dicks**. Are you trying to do that?

Admiral **Gentz**. Yes, sir. We are working with Boeing on a number of issues like that.

Mr. **Dicks**. Flesh that out for the record.

[The information follows:]

It is the Navy's position that the damage to the fin constitutes a defect in the aircraft system and as such the engineering and subsequent modification to the aircraft tail is the responsibility of the contractor.

Mr. **Dicks**. The Selected Acquisition Report for this program indicates the Navy unilaterally made a price determination for the total procurement of 15 aircraft.

Has the contractor agreed with that price and, if not, what is the status of negotiations?

Admiral **Gentz**. We are about ready to go to the Armed Services Board of Contract Appeals on that issue, and it is currently in litigation.

Mr. **Dicks**. So we have an issue there as well?

Admiral **Gentz**. Yes, sir.

A-12 PROGRAM

Mr. **Dicks**. Can you give us an update on the A-12?

Admiral **Dunleavy**. It was 16 aircraft on the E-6A, not 15. As to the A-12 we can't talk about it too much in this session because of the classification.

From our perspective, the contractors did a fine job. It has satisfied operational requirements. The program we have hopefully will be declassified so we can brief it and invite you to come down to Fort Worth and St. Louis to look at it.

The first flight will be ——— and all the operators involved with it are pleased with what they are seeing and hearing, and with DOD's help, we will give you a full report by the end of the year.

Mr. **Dicks**. Are we still in full-scale development?

Admiral **Dunleavy**. Yes.

Mr. **Dicks**. When will we go into procurement?

Admiral **Dunleavy**. The IOC is ——— with first deployment shortly after that. We have small money in procurement at the present time.

Mr. **Dicks**. Let me ask you this. Are you going to keep this program in the black?

Admiral **Dunleavy**. No, sir. We are making efforts now to declassify it as rapidly as possible.

Mr. **Dicks**. I am not sure after the B-2 I would recommend that.

Admiral **Dunleavy**. We want to open it up.

Mr. **Dicks**. I think that is probably the right thing to do.

The A-12 is subjected to this current review of major programs being conducted by the Secretary of Defense. Can you give us status on that?

Admiral **Dunleavy**. The team is traveling around the country looking at all four programs, the C-17, B-2, ATF, Navy ATF and A-12. They will be home Friday night or Saturday. The committee's full report will go to Mr. Betti by 30 March, and hopefully the Services will get the report sometime in April.

Mr. **Dicks**. Let me ask you this. There has been a question back and forth about your commitment to ATF and the Air Force's commitment to A-12. Can you give us an update on that.

Admiral **Dunleavy**. The Air Force is committed to A-12 to replace the F-111, and we are fully on board with the Navy ATF program through DEMVAL, which is now 6 June 1991. That is when we, the Navy, have to make a decision whether or not to go forward with a Navy ATF. It is too early to tell at the present time.

Mr. **Dicks**. The A-12 would be basically a replacement for the A-6?

Admiral **Dunleavy**. Yes, sir. The A-6 has been around since the early 1960s. It is tired iron. The airframe and engines are getting tired. We can't upgrade the avionics much more than we have now.

We need the A-12 to give us a viable option at sea, and we have been developing that with industry for the past few years and we really like what we see coming.

Mr. **Dicks**. Is the A-6 an older technology than what you have with the F-15s and the F-17s?

Admiral **Dunleavy**. Yes, sir. The A-6 was back in the late 1950s and early 1960s state of the art. Avionics wise, it has been constantly upgraded over the years so it is still a viable combat aircraft. However, with the modern sophisticated threat—I don't care if you are talking about the Soviet threat in somebody else's hands or the Soviets themselves, fellows flying combat say that the A-6 will have a hard time getting bombs on target and then safely back.

The A-12 will give us the capability to go in, put bombs on target and get back. It is a giant leap forward in state of the art not only for the airframe and engine, but also avionics.

P-7 ASW AIRCRAFT

Mr. **Dicks**. You are doing a replacement for the P-3 isn't that correct, a new plane?

Admiral **Dunleavy**. Yes, sir. We are looking at the P-7.

Mr. **Dicks**. That is being done by Lockheed?

Admiral **Dunleavy**. Yes, sir.

Mr. **Dicks**. I understand that program has had serious problems. Can you give us an update on where we stand on the P-7?

Admiral **Dunleavy**. Operationally, this past November Lockheed said they were having technical difficulties with the P-7 meeting what the operators wanted. They are coming back to us, through the Secretary of the Navy, Mr. Garrett, the middle of this month with how they are going to address that. Business wise and technical wise, we have not had an update since November. Lockheed admitted they have an overweight problem which they think they have resolved, as well as other problems.

Admiral **Gentz**. One of the primary technical problems that drove us to be concerned was an apparent large weight growth. At that point, when Lockheed indicated that they had a problem with the program, we went back and worked with them on technical problems. We now have the weight understood, under control, and mutually agreed to. The aircraft has not lost any of its operational mission capabilities due to weight modification. The aircraft, as currently understood between the Navy and the contractor, will meet all of its specifications. It has taken a lot of work to get us to that point.

The issues, I think, which I can be candid but somewhat reserved about, are the business issues that Lockheed is currently confronting, and that we are working very hard with them.

Mr. **Dicks**. Are you concerned that they may not be able to do this because of the financial problems they are having?

Admiral **Gentz**. I wouldn't want to speak on this issue given Lockheed's situation going into their annual stockholders meeting in the latter part of this month. I believe that we have a contract with them which we understand quite well that includes production options, and we are holding to that while we discuss the impact of what is going on.

Mr. **Dicks**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller.

AIRCRAFT PROCUREMENT QUANTITIES

Mr. **Miller**. Thank you, Mr. Chairman.

I noticed there is an increase in the budget of about $541 million, and yet the statement also mentions that you have that because the availability of foreign bases is diminishing, and overflight rights are diminishing.

We are taking all this into consideration when we talk about the number of planes that we must furnish in 1991 or at least furnish funds to start the line?

Admiral **Dunleavy**. Sir, we are trying to make do, with the budget constraints laid on us, and buy enough aircraft, to make our sea based committments so we have the capability of going to sea as an instrument of the national will.

What we put together was a balanced approach of air power at sea, primarily taking into consideration what you just said about the possibility of further overseas base closures and also overflight restrictions.

Mr. **Miller**. As you know, given the political situation we are in and the meetings between President Bush and Gorbachev, we are thinking that we may not need—and I am not putting my neck out and say that we do not need, I don't believe that, but I am wondering if we need as much as what we had up until now in procurement of aircraft. Do you feel that the 1991 budget, because it had to be prepared ahead of time, do you feel that it took into consideration the political changes in the world?

Admiral **Dunleavy**. Mr. McDade said my personal professional opinion. I will give that to both of you right now.

I think the Navy-Marine Corps team, especially Navy-Marine Corps aviation in the sense of the Carrier Battle Groups and the Marine Expeditionary Forces, as we operate together with the world coming around the way it is; it is going to be the force of choice to be employed no matter what happens.

I could give you facts and figures for the last 20 years. It is the Navy and Marine Corps that has answered the mail every 18 to 24 months. Granted, it wasn't the Soviets doing it, but Soviet weaponry, Italian weaponry or our own coming against us. There are all kinds of hot spots in the world that can blow up. It is not just the Soviet threat; it is North Korea, ———. I can show you where the Navy and Marine Corps will be called on by the national command authority of the President if he sees fit to call upon us.

That is why we feel strongly that even though there is going to be a build-down, we should look hard at what we do with the Navy and Marine Corps and especially Navy/Marine aviation. Our fellows go wherever you want to send us and do their job. They show presence, and they can inflict violence instantaneously if need be. It is the Navy and Marine Corps that does that.

You have this weapon to apply as you see fit. That is why we structured our programs with the monies we were given so as to best spend our resources and get the aircraft we need; and again, we go towards the carrier-based aircraft.

Mr. **Miller**. I know you and the rest of us are walking a tightwire when it comes to the political situation and whether it is going to cool down or heat up. I wondered whether you were taking that into consideration with the budget itself.

General **Pitman**. The budget has already brought down the numbers of aircraft that we hope to buy. There has already been a downward adjustment. This began before a clearly revised strategy could be developed, since nobody was sure what was going to happen next. All the Services have gone down in the numbers of things that they are going to buy based on what our plans were several years ago. DOD recognizes that the threat has diminished and therefore aircraft and many other items will be introduced later than we had hoped.

OPERATION JUST CAUSE

Mr. **MILLER**. Operation Just Cause in Panama took place most recently, I know you are in procurement, but you are procuring planes to carry out such things as Just Cause, but were Navy aircraft in any way involved in that particular operation?

Admiral **DUNLEAVY**. No, sir. The only Navy participation in that as far as I know were the SEAL teams.

Mr. **MILLER**. How about the Marines? You were involved in Panama to some degree.

General **PITMAN**. Not the aviation side, sir. We had about a thousand Marines involved, an infantry company and a light-armored vehicle company along with some radio battalion folks and some Special Operations personnel. We had no aviation elements involved.

Mr. **MILLER**. I might ask just for a quick yes or no. Did you feel that what was there in supplies for the 1,000 people was ample or that they could use different supplies that you could recommend, and the idea is to give them the most safety you possibly could and end the problem as quickly as we could. Did we learn any lessons there that you know of?

General **PITMAN** As far as the supplies, those people were certainly adequately supplied, as were all the forces involved.

We had a long time to build up the supplies on the ground. We already had 12,000 to 13,000 friendly forces there and they were well equipped. So having supplies was absolutely not a problem.

I am sure there were some lessons learned. Though not having participated in it, I judge from afar, and I would rather have you ask an expert or someone who was there. I have just heard reports about it, and that hardly qualifies me to speak on that subject.

Mr. **MILLER**. Thank you.

Thank you, Mr. Chairman.

SPARE PARTS

Mr. **MURTHA**. Let me ask some questions about spare parts.

Last year the Navy reported to the committee that $441 million, over 16 percent of the replenishment spare parts for 1986, 1987 and 1988 were in back-order status. Are those delays of three years accurate? It has taken that long to get the spare parts?

Admiral **GENTZ**. The answer in part is yes, there are back orders on spares. We worked at about that same time very arduously to transfer some monies into the spare account. If you will give me a moment to check to see if I have specifics; otherwise we will get back to you for the record.

Mr. **MURTHA**. We would like you to find it because we had representatives from TWA, Sears and General Motors in yesterday.

They tell us the normal time for them to be able to get spares from the time they order it is 12 weeks. The average time we found in the Service was 400 days to 800 days.

Now, they talked about a figure of every day it costs us millions of dollars because we have to buy spares so far in advance because it takes so long to get them. I can't comprehend that it would take industry 12 weeks to get their spares and it would take the Service well over a year at a minimum and over two years at a maximum to get these spares from the time you order them.

Admiral DUNLEAVY. I will give you my personal opinion. Depending on where you are looking at where the spares are—my background is on carriers at sea. Because of the investments we have made in the last ten years in buying spare parts, ten years ago our aircraft availability was probably mid-50s, low 60 percent. Now, with the spare parts we have in our ships for our aircraft, it is up in the high 70s, low 80s, sometimes in the low 90 percent.

Mr. MURTHA. I am talking about from the time they order, and these three companies all agreed to this, from the time they order a spare part to the time they get it, it is 12 weeks.

I know they deal with fewer parts, although General Motors has a large spare parts inventory and so does TWA, but the government delays seem out of line and expensive.

This morning I went before the Democratic Caucus of the Budget Committee and they were berating those of us who serve on the Defense committees for not paying close attention to what they consider excesses, and this is one of them that they pointed out.

I am asking how long it takes to get the spare parts from the time you order them, and why it takes so much longer than it does industry.

Admiral GENTZ. Let me try that, sir. If you are in a commercial business, you have the opportunity to buy from a catalog. In those instances where we have a commercial product, we are able to buy catalog-priced items very quickly.

In trying to get to an apples-to-apples comparison, I think that the number that you quote, which is somewhat familiar to me although in a different context, is the amount of time that it takes to get on contract in a competition environment, because we are in a situation now, because of CICA, where we do competitively procure spares, so very often we will end up in a lengthy procurement process.

A great deal of effort is going into shortening that process and we are making great strides along those lines.

Mr. MURTHA. I know Congress requires a certain amount of competition. They have found in a number of instances that competition was not the best way to go for cost or for service.

I used the example of a small company that came to me that was selling spares to the Post Office department for a new vehicle. This company, because it centralizes supply, was able to plan over a four- or five-year period, and they were able to cut the cost of spares by 31 percent over dealer cost.

We certainly can't tell you how to run your business, but when we hear of backorders and delays, we have to try to figure out a way to get control.

Is cutting out the amount of money that is available for spares a way for use to get your attention, or what do we do to get your attention?

Admiral Gentz. The readiness of the fleet right now has never been better.

Mr. Murtha. But you are missing the point. The point is that we are going to have a difficult time coming up with money for the budget this year and if we are overspending in this area, we can use it someplace else more effectively.

We are going to have a terrible manpower problem just to meet the guidelines this year. You see the problem we are having with even a simple reprogramming.

Have you just bought so many spares you have got them lying around so you don't need them for a couple of years? I am trying to figure out the efficiency of your organization and what the procedures are to procure spares, and is there anything we need to do to help correct it?

Admiral Dunleavy. The Navy's aviation supply officer, a one star admiral, has a great answer, but I am not smart enough to give it to you. He puts it in laymen's terms on how we have to buy some things to make sure we have them when needed.

Every time we start cutting down on spares it makes it tough for the troops to maintain the aircraft. When the young kid doesn't have the part to put in an aircraft, he gets discouraged and then we have to cannibalize the parts. This hurts morale, which hurts retention.

Mr. Murtha. I have been in the forefront on this issue. We pumped $5 billion into spares about eight years ago when the Defense Department didn't ask for them. We know about the spares problem. What I am saying is, we are getting criticized for management of spare parts. They are talking about $8 billion worth of spare parts out there that can't be used.

Is there anything we can do? Is competitive procurement the wrong way? Is there legislation that needs to passed? What can we do try to increase the efficiency of buying spare parts in the military—in the Navy?

General Pitman. They looked at depots and how they operate. Part of the problem has to do with internal procedures in the DOD, some placed on us by the Congress, but many were the result of our own actions; rules and regulations that were put in to correct a previous ill.

The process causes us to take what appears to be forever to get a part manufactured. First, our parts are probably more complex than you would see in a car, a truck or most civilian airplanes, so we have to understand that issue.

We have to go through the contracting and competition process, and even if we find competition isn't the best way, often times we still must compete because of our rules.

Mr. Murtha. Why don't you give us something, a proposal, so we can look at it.

If you have a recommendation that might simplify it, we would like to hear it.

Admiral **Dunleavy**. Mr. Chairman, I have a piece of paper that answers in layman's terms part of the problem of what we are addressing at this time. I will submit it for the record.

[The information follows:]

Your questions highlight recent Congressional and media attention which has focused on excess or inapplicable inventories implying that the DOD Supply System is out of control. I wish to address two key points in this area: (1) the causes of this excess inventory and (2) your concern about lengthy procurement leadtimes.

First, the fact that approximately 80 percent of inapplicable inventories is a byproduct of our continuing weapons system modernization programs. As we replace old aircraft, old ships and old tanks, we similarly need to replace the spare parts. In other words, new weapons systems require different spare parts. (For example, a Zenith TV bought in 1990 could not be fixed with spare parts for a Zenith TV bought in 1965). The spare parts for the old weapons systems remain in our warehouses and are considered by some people as wasteful and abusive. It can be shown that these parts have served a useful purpose in maintaining national defense readiness, and are now being saved for economic or contingency reasons. In summary, we have modernized our fleet, ground and air forces. The old spares in our warehouses are like ships, tanks and airplanes in mothballs.

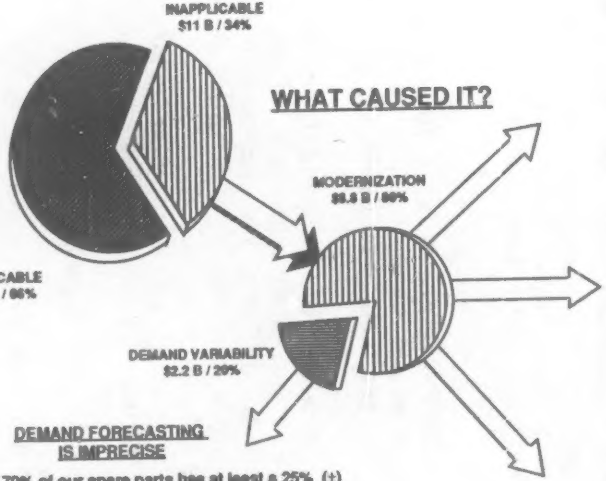
The second major cause of inapplicable inventories is the high variability of demand (usage rates) for spare parts in today's high technology weapons systems. In a recent Navy study, we learned that over 70 percent of or aviation-related spare parts has at least a 25 percent (up or down) demand change from one year to the next. When you couple this demand variability to the fact that procurement and manufacturing leadtimes require us to forecast and buy our spares two years prior to actual need, you can begin to see why we sometimes miss the mark. Predicting exact usage this far in advance is not an exact science. We use the best modeling and auditing techniques available, but still encounter over and under spares forecasts. When we forecast more than we use, we have bought inapplicable inventories. This situation makes GAO reports and the newspapers. When we underbuy because of an inaccurate forecast, we prevent the repair of a front line weapons systems. An additional point is that over a four year period, 85 percent of our inapplicable inventories, resulting from inaccurate forecasts, is used or becomes applicable within four years. The recognized harm done is that we bought some spares earlier than our need. The bottom line is that there is going to be some inapplicable inventory generation—as a cost of doing business—in forecasting spare parts requirements. This is the case in DoD and U.S. Industry. The attached chart illustrates the causes that are addressed above for excess inventories.

Finally, you concern about lengthy procurement leadtimes is also shared by Navy. We have implemented a number of initiatives (e.g., just-in-time procedures and agressively negotiating reduced leadtimes with manufacturers to reduce procurement leadtimes). From our 1987 baseline to date, leadtimes have been reduced approximately 20 percent. Furthermore, OSD through the Defense Management Review process has committed Navy to reducing supply systems cost by $2.5 billion during fiscal years 1991 to 1995. A significant portion of these savings are from reductions in procurement leadtimes. In compliance with this initiative, we have already committed ourselves to an additional 25 percent reduction in procurement leadtimes.

To summarize, the Navy's excess inventory is not a result of a system out of control. The vast majority of these items have served a useful life and are now being held in our warehouses for contingency purposes. Additionally, Navy's high variability of demand coupled with two year procurement leadtimes have contributed to excess inventories. Initiatives are being implemented which should significantly alleviate this imbalance and we are committed to those efforts.

NAVY INAPPLICABLE INVENTORY

WHAT CAUSED IT?



DEMAND FORECASTING IS IMPRECISE

- Over 70% of our spare parts has at least a 25% (±) demand change from one year to the next
- 85% of our inapplicable inventories, resulting from inaccurate forecasts, is used or becomes applicable within four years

WHAT IS IT?

- By-product of ship & aircraft modernization
  - New ships, new aircraft, & upgraded systems in older aircraft & ships require new spare parts allowances
  - Old spares allowances and replaced systems are returned from the Fleet and are called inapplicable inventories
- Said another way ... Repairable spares which have served their intended purpose — failed & repaired over a lifetime of service to now obsolete weapons systems

WHY DO WE HOLD IT?

- For contingency reasons – e.g., if we need to activate F-4s again
- To satisfy foreign military requirements – e.g., British F-4s
- For economic reasons – i.e., cost to retain is less than potential reprocurement costs
- Conservative DoD disposal policy – which is being revised

WHAT IS IT WORTH?

- If we followed commercial practices and valued the inventory at market value, the $8.8 B would be worth less than $1.0 B

BOTTOM LINE :

INAPPLICABLE INVENTORY IS NOT THE RESULT OF DELIBERATE OVER-BUYING, BUT IS PRIMARILY THE BY-PRODUCT OF OUR CONTINUING MODERNIZATION PROGRAM ... WE ESSENTIALLY "MOTHBALL" SPARE PARTS AS WE MOTHBALL SHIPS AND AIRCRAFT

Mr. MURTHA. We are going to have another spares meeting next week with spares experts. We have to increase efficiency in this area.

Mr. McDade.

RAPID ACQUISITION OF MANFUFACTURED PARTS (RAMP)

Mr. McDADE. Thank you very much, Mr. Chairman.

I want to echo and commend the Chairman for the comments he has made and emphasize that this problem needs some attention because it is going to bite you real hard. So give it your hard looks.

We had an excellent hearing on this matter with private industry, and, for example, maybe we've discussed, statutorily required competition may not be the way to go.

Those fellows used to be in your MIL SPEC business. They are out of the MIL SPEC business. They go to the vendor base and get the best price they can get and form a partnership with the guy to try to get the competition in an earlier phase in a different way, and then make a handshake, say, "If you want to be our supplier, be our supplier. Don't let them dump spares on you; make them produce it to you." And you fellows have a plant near Charleston——

Admiral GENTZ. RAMP. We are working on that, yes, sir.

Mr. McDADE. I understand Boeing has one going.

Admiral GENTZ. The technology capability is clearly viable to do those kinds of things.

Boeing at most has what, five different types of aircraft, all of some relatively narrow design. Our problem, of course, in the variability is somewhat more difficult. We are working hard at RAMP.

Mr. McDADE. What is the status of RAMP? If we went down there, would we see a factory operating?

Admiral GENTZ. They are going to have a ceremony in the next few days at Naval Avionics Center, a ribbon-cutting for the preliminary capability.

Mr. McDADE. Has Boeing already had their ribbon-cutting, do you know?

Admiral GENTZ. I am sure they already have, sir.

Mr. McDADE. We are not reinventing the wheel, are we? You take the concept of a smart tool and eliminate the blueprint and get into the cutting of the metal off computer-driven——

Admiral GENTZ. We are doing that. We have a capability now between McDonnell Douglas and the Navy.

Mr. McDADE. What is RAMP doing differently?

Admiral GENTZ. It is that concept. Are you suggesting that we go to Boeing for those types of things?

Mr. McDADE. Have you been there?

Admiral GENTZ. Not lately.

Mr. McDADE. I am sure you folks know what Boeing is doing with their shop, which we were told by the TWA people is up and running, so you don't have to carry inventory; it gets unique parts in a very quick time. I had a company in my district, they plan for ten years max. You fellows have to plan for 40-year-old ships, but I had a company in my district that had the same problem. Their stuff was so good it kept staying out there all over the world.

They put in a worldwide parts center. It seems to me that the RAMP offers you that kind of opportunity.

Admiral GENTZ. Yes, sir. Right now we are able between the McDonnell Douglas Company at St. Louis and the depot at Cherry Point to transfer the CADCAM data from the prime contractor into the depot. A RAMP capability will give us the ability to do what you are talking about.

The facilitation of many of the prime aerospace companies is now becoming more and more along those lines. Some of the companies that I have gone to use CADCAM technology and that capability does exist.

COMPETITION IN CONTRACTING ACT

Getting back to your original comment on competition and the potential drivers of the CICA, we are looking at things called best value now. We are doing studies which would allow us to go to specific suppliers. We are doing a number of those kinds of things.

What I think in part caused us to expand the time was we didn't quite know how to deal with competition in the way that it was thrown on us in those last three or four years following CICA, and we probably over compensated.

We are working hard to get back into the area. Then I think we will shorten those procurement times. We will go to the best value people, have qualified vendors, get more on catalog price. I think we are making some progress and I am sure that when the spares people come in tomorrow, they will be able to talk to you about that as well as the advantages of RAMP.

Mr. MCDADE. Is CICA a beneficial statute?

Admiral GENTZ. I favor competition.

Mr. MCDADE. Don't we all. I am asking about CICA, whether that helps or hurts you.

Admiral GENTZ. We carefully consider competition and we don't allow ourselves to buy at the easiest place to go.

Mr. MCDADE. So it helps you?

Admiral GENTZ. Yes, sir. We are getting smarter on how to do that now.

Mr. MCDADE. I hope you will give us a comprehensive response.

[The information follows:]

The end results gained from implementation of the Competition In Contracting Act (CICA) since 1984 have benefited procurement of Naval Aviation spares in many ways. The Navy implemented the Buy Our Spares Smart (BOSS) program in FY 1983 to assist in accomplishing the Navy's goal of obtaining fair prices for spares and repair parts. The process initiated to buy our spares smart complements the ultimate requirement of CICA which is full and open competition.

While the process and details of implementing CICA have not been easy and in some instances have presented formidable hurdles to leap, the overall end results continue to be significantly beneficial.

CICA accelerated the Navy's initiatives to acquire adequate technical data to support competition to increase qualified parts manufacturing sources, streamlined acquisition procedures and specifications and encouraged the use of standard parts to reduce unnecessary costs. Prior to CICA, competition was not a major consideration for the acquisition of spares by the Navy. As a result, little was accomplished to increase the Navy's base of qualified spares and repair parts manufacturing sources. With CICA, there is an emphasis on early planning and procurement of adequate technical data to facilitate competition in order to increase the number of qualified sources with the ability to compete in full and open competition. The resulting benefits are measurable in terms of reduced costs of spares.

Aviation spare parts acquisition for the Navy is performed primarily by the Navy Aviation Supply Office (ASO) located in Philadelphia, PA. Prior to implementation of CICA, little effort and resources were expended in developing competition. In fact, in 1983, only 9.1 percent of $111 million of the dollars spent by ASO were awarded using competition.

After implementation of CICA and having been criticized by the press with examples of overpriced spare parts, the Navy dedicated significant resources into increasing competition. At first, the Navy experienced a learning curve on how to select the right items to compete and how to ensure we would receive spare parts not only at the best price, but also of equal or better quality and continue to meet all the requirements of CICA.

Extensive efforts have been expended ensuring quality is not compromised with special attention to flight critical items. Although the level of review applied to these items requires a longer review time and represents a more costly review, the results to date indicate an excellent return on investment and no degradation in quality. Further, the Navy has worked to prevent competition from delaying the acquisition process.

Over the past six years, the process of competing spare parts has been improved with savings at ASO alone being $103.5, $142.0, $154.2, $134.9, $60.7 and $99.4 million for FY 1984 through FY 1989 respectively. The return on investment in each of these years was 9.9 to 1 in FY 1984, 7.9 to 1 in FY 1985, 7.5 to 1 in FY 1986, 6.1 to 1 in FY 1987, 3.2 to 1 in FY 1988 and 7 to 1 in FY 1989. These estimated savings have been factored into current budget estimates.

Competition has become the Navy's preferred approach in procurement. The emphasis now is on early planning and procurement of adequate technical data to facilitate competition which ensures the procurement of high quality parts at decreased costs. Competition is a valuable means of enhancing innovation, responsiveness and reasonable prices in private industry. Furthermore, having taken lessons learned and focusing resources on items which will provide the highest savings, the Navy is continuing to improve the return on investment rate on the taxpayer's investment.

RAMP CAPABILITY

Admiral GENTZ. We had a serious problem with a constant speed drive, CSD, system for the the A-4 aircraft. The manufacturer of that equipment, and there is a long story that goes behind this CSD, was unable to provide parts.

We went to the National Institute of Standards and Technology and did exactly the RAMP process where they used their capability to go out and find people who could make very critical, almost watch-like piece parts, and in a period of time, which was less than a year, we went from what was going to be a major grounding in our training command force as well as some of the Marine A-4s to solving that problem with available parts on the shelf by doing exactly the type of thing that RAMP will give us capability to do, old parts, unique parts, and that worked well for us.

Mr. McDADE. When will you have that capability in place to deliver what you need in the way of parts?

Admiral GENTZ. I don't think we will ever be able to have the capability through RAMP as it is currently laid out in two sites, Cherry Point and Indianapolis, to cover our entire spares for all the critical backlogs.

Specific parts, some parts we are no longer able to get from vendors, which we have done now—and in time we will have a better capability for the older equipments, but we will never have 100 percent that way, sir.

Mr. McDADE. We never have 100 percent of anything but I would like to hear if there is a substantial increase in your ability to meet your inventory requirements because of this process. I would like to know what it is. If we have to go to lower levels, would you be able to deal with, say, 70 percent of your critical inventory items?

Admiral Gentz. Let me provide that for the record.

[The information follows:]

The RAMP Project emphasizes the application of computer integrated manufacturing and acquisition technology in support of low volume, high mix production of spare parts. Essentially, RAMP targets a "parts on demand" production capability. RAMP program objectives include:

Manufacture difficult to obtain parts critical to fleet support operations in a responsive, cost effective and automated manner.

Reduce current total average production leadtimes from 300-700 days to 30-60 days.

Transfer RAMP technology to U.S. industrial base to provide capability for Just-In-Time support of DoD requirements.

Our initial prototypes will be installed at Navy depot activities to modernize their shop capabilities, as well as provide a capability to manufacture critical spares when industry sources are not available or leadtimes are excessive. Although the prototype shop equipment targets a small part range relative to the total Navy inventory, the RAMP architecture and concept can apply to the total Navy inventory. The two prototype commodities to be manufactured are Small Mechanical Parts and Printed Wiring Assemblies as follows:

	Range	Throughput/year
Small Mechanical Parts (SMP)	3,000	15,000
Printed Wiring Assemblies (PWA)	3,000	15,000

Initial Navy installations are scheduled as follows:

Naval Aviation Depot, Cherry Point	SMP Cell by Sep 1991.
Naval Avionics Center, Indianapolis	PWA Cell by Mar 1992.
Naval Shipyard, Charleston	SMP Cell by Sep 1993.

The key to the RAMP system is the use of a next generation technical product standard currently being coordinated with industry by the National Institute of Standards and Technology (NIST). This new standard, Product Data Exchange Specification (PDES), is a critical factor in being able to communicate technical data information between the various computer hardware and software used in industry and government today.

PDES goes beyond current U.S. standards in that it will enable clear unambiguous transfer of product information that is capable of automatic interpretation by the computer, as well as human interpretation. PDES enables RAMP to significantly reduce manufacturing lead times and increase quality production of spares. The PDES effort is fully supported by industry as a mechanism for making the industrial base competitive with off-shore manufacturers. RAMP is the first Flexible Computer Integrated Manufacturing (FCIM) system to use the emerging PDES standard.

The largest impact of RAMP will occur when the PDES standard matures, weapon system technical data is acquired in PDES format and the U.S. industrial base moves to RAMP-like manufacturing. This allows the DoD Inventory and Program Managers to plan spares levels around reduced leadtimes. The Department of Commerce and the Navy are jointly promoting rapid deployment of FCIM and PDES as a National priority. In the interim, Navy will update leadtime databases at the Inventory Control Points as items are transitioned for RAMP-like production in industry. Thus, the Navy spares budgets will automatically incorporate RAMP impact on leadtimes, resulting in lower inventory levels and lower costs to support the fleet spares requirements.

Mr. McDade. I am not trying to pin you down to a statement that you haven't thought out, but when you give us the information over and have an opportunity to discuss it, then give it to us; because if it is a way that is going to ameliorate this problem and you are spending a lot of effort and you think it does work in a lot of instances, it has a lot of potential to deal with this problem, we need to know about it. Give it your forceful thought.

P-7 PRODUCTION OPTIONS

Let me go back to the P-7. As you know, the current development contract has fixed-price options in it, production options and the options include provisions for a minimum procurement of 25 aircraft by 1995 and 50 by 1998.

If the development slips, how can you reasonably expect to reach those quantities?

Admiral GENTZ. Well, I will respond to that, sir, by saying that we have presented a plan that we believe will permit us to do that but it is not easily accomplished. We are working, as we speak, with Lockheed to discuss the contract and its execution.

Mr. McDADE. So you really haven't ironed out the answer to that question as yet?

Admiral GENTZ. No, sir. We stood back and allowed Lockheed to assess their own situation, do a structural update of the aircraft, redefine it, and they came in probably within the last ten days to discuss that.

We accepted their technical solutions as we discussed earlier, and now we are in a situation where we are looking at the schedule impact as well as the contractual aspects of it.

Mr. McDADE. When is the earliest moment when you think you might be able to answer that question definitively?

Admiral GENTZ. We promised that for inclusion in the budget cycle that is now beginning.

Mr. MCDADE. What I am trying to ask you is, when will you work this problem through and be able to answer that question?

Admiral GENTZ. We will have a pretty good answer in April.

Mr. McDADE. Let the staff know immediately when you get that word.

In view of everything that is happening in the budget world, fiscal constraints, et cetera, do you think you will be able to devote over a billion dollars a year starting in 1994 to protect these production options?

Admiral GENTZ. That is a question of affordability, sir, that we are working right now arduously in what is called the POM process.

Mr. McDADE. Yet another question of affordability. Give us your best response as soon as you can.

Mr. McDADE. Thank you, Mr. Chairman.

[The information follows:]

The Navy intends to hold the current contract in force while evaluations of the technical, schedule, and affordability issues are ongoing. A Defense Acquisition Board meeting is expected to be conducted in late April or early May 1990 to address these issues.

AVIATION SAFETY AND FLYING HOURS

Mr. MURTHA. Mr. Dicks.

Mr. DICKS. You mentioned in your statement, Admiral, that we had a pretty good year last year on air safety. We hate to lose even a single airplane or pilot, and I certainly understand that.

I know the Navy puts a very high priority on this. We have had problems at Whidbey Island. We have lost some A-6s and every time one goes down, it causes a real stir out there.

As I understand it, when you look at this thing historically, we have done pretty well in terms of air safety in the Navy. There is no real basic defect in the A-6, is there, that has caused these problems?

Admiral **Dunleavy**. No, sir. My background is A-6s, including Whidbey Island. There is no basic flaw in the aircraft at all that we can see.

Mr. **Murtha**. We found with the EA-6B that we had to have more experienced pilots and that dramatically reduced the accident rate we had on those aircraft.

Is there a relationship between these accidents and experience? I am trying to get the question of training time.

One way to save money is to fly less, train less, which I don't agree with, but there is a safety relationship here, too, isn't there?

Admiral **Dunleavy**. Yes, sir. That is what we push for. My number-one priority in aviation is more flying hours. So there is constant pressure from us to get increased flying hours.

Right now we program 25 hours per pilot per month. That is about, depending on the type of aircraft, anywhere from seven to ten hours lower than I would like to see the kids fly. Twenty-five hours per pilot per month is bare bones.

Mr. **Dicks**. You think it should be in the 30- to 35-hour range?

Admiral **Dunleavy**. Yes, sir. Personal opinion. An F/A-18 guy should be flying at about 32 hours a month across the board. It is one of the things that because of budget, we can't afford. Like Mr. Murtha and the parts; the money you put into parts eight years ago has given us better availability. Part of the reason for the safety record is having the right kind of parts at the right time, the kid flying enough, and the aircraft a full-up system.

When you fly the full-up system, you can do the job better, so the safety record is better. It is not just one thing; it is a whole series of items put together.

Mr. **Dicks**. Is pilot retention still a problem?

Admiral **Dunleavy**. Hopefully it won't hit the Navy. It has turned around. We were down to 29, 30 percent; now it is climbing back up to 39 percent across the board.

We would like to retain 42 percent of our pilots. Some communities are doing better than others.

Mr. **Dicks**. What is the reason for that change?

Admiral **Dunleavy**. Probably the action you took on bonuses and the hazardous duty pay, the Aviation Career Incentive Pay program. The kid is getting more enthusiastic as you give him more flying hours. He joined the Navy to fly. Naval aviators love to fly. The more they fly the happier they are. You take them to sea and challenge them, and they do it well.

My goal is to give them more flying hours. But the bonuses and the increased flight pay is also good for them.

F/A-18 RANGE

Mr. **Dicks**. A couple of years ago we went through the F/A-18. It seems every weapon system at some point is controversial and one of the controversies of the F/A-18 was its range.

What have you done about that? Have you increased your fuel tank capacity?

Admiral **Dunleavy**. The fellows on carriers use different cycles for the airplane. Most of the aircraft carriers operate an hour and a half to an hour and 45-minute cycle. With the F/A-18, you launch them last and recover them first, so you give them about an hour-and-a-half cycle.

There is nothing worse than telling a young fellow to fly and then have him just hang back on the power. You want him to fly the aircraft at his ability and to the aircraft's ability. We make imaginative scheduling, and use the aircraft to its maximum advantage.

Mr. **Dicks**. Is there any way to deal with the generic problem of range?

Admiral **Dunleavy**. I think some day we can develop a follow-on to the F/A-18 and put in more fuel, 2,000 pounds would be ideal. But we can't afford that now. I think some day we should think about replacing the F/A-18 and AV-8B with a VSTOL aircraft. That is in year 2005, 2010. We don't have the money to do it now, but we are looking at it.

AV-8B RADAR

Mr. **Dicks**. General Pitman, I read in your statement you said they didn't put a radar on the AV-8B. Why not?

General **Pitman**. It was a matter of cost and weight at the time. The radar weighs a certain amount and the parts that go with it add more weight.

In addition, it requires some power off the engine to run the environmental control system to cool all the radar and the other equipment. Right now we have a new engine coming on line which will be in the fleet in July of this year. It will give us 3,000 extra pounds of thrust, better range, improved fuel specifics and more reliability. That will allow us to expand the capabilities of the aircraft.

The AV-8B was designed as a daytime ground attack aircraft and can be employed as a visual fighter, but it has no radar to detect anyone; which limits it to a visual situation.

Since then we have upgraded the aircraft with a night-attack system, the first of which was delivered in September of 1989. Our first squadron is standing up right now. It will give us a night-attack capability under the weather.

However, radar would greatly improve the aircraft's range and capability for weapons delivery.

So for many reasons, including the fact that the Italians and Spanish are interested in it, we have an opportunity to look at least at forward fitting our aircraft with the radar to reduce the pilot workload and enhance the capability of the aircraft both as an air defense fighter for the amphibious forces and in a ground-attack role.

Mr. DICKS. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Miller.

F/A-18 UPGRADES

Mr. MILLER. Thank you, Mr. Chairman.

Can you give us a little information about the F/A-18, I understand from your statement that there will be a lot of upgrades on that, and in that particular area in the statement, it also mentioned that we would be actively pursuing the upgrades with our allies.

Would our allies be furnishing many of the parts that would be needed in the upgrade? Is that the intent, or would the planes be flown to another country and upgraded?

Admiral DUNLEAVY. The upgrade we are really interested in is the radar upgrade. The Canadians are the fellows who are really interested with us. We want it. It gives the pilot the ability to perform combat when he gets to the scene of the action. Right now, because of lack of radar, he doesn't know the tactical situation until he gets there. The allies are on board, but it will be American made and produced here.

Mr. MILLER. If we want to upgrade and we want to use a radar that is in a foreign nation, mounted there, do we pay for that or does the host country pay for that type of thing?

Admiral DUNLEAVY. The host nation pays for that through the FMS program. The only country we are working with on the radar upgrade on the F/A-18 is Canada and they would pay for it.

Mr. MILLER. To get back to where we purchase, can you give us some figures that would tell us what out of this budget will be spent overseas for parts for replacement or whatever else you need buy?

Admiral DUNLEAVY. We don't have anything in the F/A-18 overseas.

Mr. MILLER. You don't purchase any parts? What if an aircraft, based overseas, requires maintenance work. Is it done there or is it brought back to the States for that work?

General PITMAN. We would accomplish the maintenance over there, sir.

Admiral GENTZ. We have some contracts with companies overseas who can do repairs. We also have our own depot capability overseas in the Mediterranean and Japan run by the United States to assist us in those areas, sir.

Mr. MILLER. That is a good thought when you mention Japan. Do we have that at Clark Air Force Base in the Philippines?

Admiral GENTZ. No, sir.

General PITMAN. We have a facility at Cubi Point.

Mr. MILLER. To maintain the aircraft.

Admiral DUNLEAVY. It is intermediate-level maintenance, American Management, some Philippine workers doing the blue-collar work; but most of our work is done on board ship by our white hats.

During Vietnam we did combat repair at Atsugi, Japan and there is an aircraft outfit in Naples that does a small amount of work managed by Americans with Italian workers, but most of our repair work is done by American white hats led by chiefs on our carriers.

General **Pitman**. But even if the Japanese perform the labor, the parts would come from the United States. That is part of our supply chain.

Admiral **Gentz**. One thing which occurs to me, the Spanish have the capability to build tails for F/A-18s. The Spanish are buying F/A-18s and they have a production capability for their aircraft. So there is some of that offshore.

I think that that may be some of the things that you were getting to. Specifics of that we would have to provide more on, sir.

Mr. **Miller**. Very good.

Thank you.

[The information follows:]

All Navy and Marine aircraft deployed on US Navy ships have organizational (0) level maintenance performed by their own aircraft maintenance support crews. If the ship is an aircraft carrier deployed overseas, it will additionally be able to provide the capability to support intermediate (I) level maintenance. If operational requirements dictate, some aircraft carriers deploy with a field team aboard from a shore depot activity in order to perform most depot level maintenance. Aircraft requiring extensive depot level maintenance or crash/battle damage repair beyond the capability of the deployed ship, can transfer the damaged aircraft to the nearest US naval aviation depot shore activity.

The US Navy has strategically placed aviation depot shore activities throughout the Pacific and Mediterranean with their headquarters located in Japan and Italy respectively. The missions of these activities are to administer foreign national contracts, to perform depot level repair on aircraft, support equipment and aeronautical components in support of US Navy and Marine aircraft in the Western Pacific and Mediterranean theaters. Additionally, two small maintenance facilities are operated to meet forward deployed requirements in the Far East.

MISSION CAPABLE RATES

Mr. **Murtha**. Let me ask about mission capable rates.

Admiral, according to your statement the primary indicator used to measure aircraft material readiness is the mission capable rate.

You also state that this rate is decreasing from the goal of 73 percent, which was achieved in fiscal year 1988, to a projected level of 70 percent for fiscal year 1991.

What was the mission capable rate in fiscal year 1989 and what is your projection for fiscal year 1990?

Admiral **Dunleavy**. It is going down one percent per year because of decisions we made ourselves due to the amount of money coming to us. Again, as I mentioned before, it is part of our decision on how we are going to buy spare parts and no one is smart enough to decide which spare part we are going to use. Because of the amount of money we are putting into spare parts procurement, we are looking at a one percent decrease per year.

Mr. **Murtha**. What is the single-most important factor affecting the mission capable rate?

Admiral **Dunleavy**. Spares is the most important item for high mission capable rates.

SPARE PARTS PRODUCTION LEAD TIME

Mr. **Murtha**. If you could decrease the amount of time it took to get spares, it would not only save you money——

Admiral **Dunleavy**. Yes, sir. That is why I was having a hard time with the question earlier, because at sea usually we can get the spares—I am talking about the last five or six years, we can get spare parts—pretty quick, usually within minutes on a deployed carrier. Getting parts to the carriers—I will come back to you on that.

[The information follows:]

There are many of us here who can remember the lean years of the late seventies when our carriers deployed with less than adequate spare parts on board. During those days, it was not uncommon for a carrier to have as many as 300 to 400 off ship aviation requisitions which adversely impacted aircraft readiness. Today, it is unusual to have more than 30 to 40 off-ship requisitions, which reflects the level of spares funding during the mid-1980s.

Spare parts for outfitting our carriers and Marine Aircraft Groups remain our highest priorities. Operational Commanders require that a deploying carrier have at least 98 percent range and depth of its spares allowances with 100 percent range and depth for critical repairables (those items which have the greatest impact on aircraft readiness) on board.

A concerted effort is undertaken to ensure that the allowed spares are made available. This effort begins nine months before deployment through an intensive review of proposed spare allowances. If identified shortages cannot be filled through normal supply channels, shore stations may have to give up some of their assets, or spare parts transferred from other carriers, or in severe instances, shore based aircraft may have to be cannibalized to provide a critical allowed spare.

Once the carrier deploys, an intense management effort is undertaken by all hands, from the ship's crew, supply centers, inventory control points and a myriad of other activities to ensure that aircraft spare parts are provided to fill holes in aircraft or to refill the ship's outfitting stock as the top priority. As a result of this effort, we do get spares to our carriers pretty darn fast. All of this is based on the presumption that the spares will be on the shelf when needed with sufficient leadtime.

Since deployed carriers are our front line, it is imperative they receive the highest priority. Evidence of the high readiness rates by the embarked aircraft today reflects that priority. Dollars spent on spares have made today's aircraft readiness rates possible, however, any dollar reduction to our spare parts line sooner or later translates to a decrease in readiness.

General **Pitman**. I think one of the problems we are talking about here is the backlog in buying spares. When we need more spares, how long does it take us to get them?

Carrier aircraft have priority over all other Naval aircraft, so the parts get out there pretty quickly, but when you get further down the priority list, it takes longer and longer to get the parts. To get the parts back on the shelf, you have to go back to the contractor. If you happen to hire a subcontractor who, for some reason, no longer makes that part, you have to find a new contractor to make it, and then you have to make sure that he is qualified to make that part. Otherwise, you cannot be sure of the quality you are going to get. In an aircraft, you can't just accept any kind of part that may happen to fit.

So for all these reasons, aviation spares are much more complicated than buying a part for your car. If a spark plug doesn't work, you chug a little bit and park at the side of the road and somebody tows you in. If it quits in an airplane, you have got a serious problem.

That is why it take such a long time to get some of these parts. In some cases, even if you had all the money you wanted, it would still take two years to get the raw materials and manufacture the gears and other components that might be required in one of our aircraft parts.

Mr. **Murtha**. I just asked staff because I want to make sure we were talking about the same thing. We are talking about the 12 week figure I gave you, the time from when private industry ordered a part and it is produced. In other words, they order and it is produced in 12 weeks.

We have to figure out a better way for the government. I know the magnitude is obviously different. Is there any increased funding in one segment of material readiness, in spare parts for example, that will offset inadequate funding in another area such as training or general logistics support? Is there any kind of funding change that we can make that would make any difference in this overall mission capable goal that you are talking about?

Admiral **Gentz**. Well, I would like to say that the answer is that we are working very hard at a changing environment with old aircraft, new aircraft, time between failures, that is changing from very high to very low—actually from very low to very high.

That whole thing is dynamic. I think the process is pretty balanced. Now, we are doing a lot of things to become more efficient. NALCOMIS, the Naval Air Logistics Information System, which has gotten some visibility itself because we have been working on that. Where it has been installed it is doing very well.

We are also working on a system to define computer aided design which touches on what Mr. McDade was speaking about before and our ability to transfer things into immediate capability to be turned out on automatic machines.

As far as major transfers between spares, training and other logistic elements, I believe we have a good balance. I indicated before that we had last year changed some spares lines from outfitting to initial spares, to satisfy a requirement. We do those types of things within the authority given to us.

Mr. **Murtha**. I see a picture of a long delay which is causing us an awful expense. You have your people who buy the spares, you have the users, and then you have folks who buy the initial packages of spares. We have to figure out a way to reduce the time it takes to get these spares out there to the field because obviously, it affects everything that you do, and it is a big money item.

Admiral **Gentz**. I think you are going to be talking to the experts on that. I consider myself a semi-expert in that area, because of my interest over the years in following it. I am not sure that we are yet talking on the same situation, frankly.

I appreciate your concern. I think our view is somewhat different from that and what we have to do is figure out where it is that we are coming apart.

Admiral **Dunleavy**. We will work with your staff on that, Mr. Chairman, and get it back to you.

EA-6B INVENTORY REQUIREMENTS

Mr. **Murtha**. The EA-6B Prowler, under the current airwing structure, has a shortage of over 30 EA-6B aircraft by fiscal year 1996. Prior to 1989, the Navy had conventional carrier air wings with four EA-6B aircraft per squadron. The transitional and Roosevelt air wings will have five EA-6B aircraft per squadron.

Why is there an increase in the EA-6B requirement at a time when other aircraft in the air wing are being provided with more self-protection capability such as ASPJ and stealth characteristics?

Admiral **Dunleavy**. Again, sir, it is the increasing threat as we see it. Even though some folks don't agree with us, the fellows would be flying against sophisticated air defense systems where they need the EA-6B capability. Recent studies in the last three or four years with the most recent being this past year, show the advanced capability of the EA-6B is more critical to the success of a mission. Therefore, we decided we needed five aircraft instead of four to be sure we have enough to cover contingencies.

ASPJ is not here yet. We in the Navy are very strong supporters of the EA-6B because we think if you can keep the guy from shooting, you will have the advantage. The advanced capability of both EA-6B and ASPJ will shut down the electronic warfare of the enemy no matter who he is.

The shortage of aircraft means we will have to make a decision on how to live with it because of budget constraints. We may do that by cross-decking as the guys come back from cruise.

Mr. **Murtha**. This committee put the money in for the EA-6Bs. We went to conference and because of the money shortage, we lost the EA-6B. Can you reopen that line? It looks like you have a shortfall. We knew you had a shortfall. You told us you had a shortfall last year. Are we just going to continue to have a shortfall?

Admiral **Dunleavy**. At the present time it is an affordability issue. It is a shortfall we have to work around. For us operators, it is a hot requirement. We need the aircraft, but other priority items overcame it.

Mr. **Murtha**. Can the line be reopened?

Admiral **Dunleavy**. Yes, sir.

Mr. **Murtha**. What is the cost of reopening the line?

Admiral **Dunleavy**. I will have to come back to you on that.

[The information follows:]

Assuming production of new Advanced Capabilty (ADVCAP) EA-6B aircraft in fiscal year 1992, production line start-up costs due to loss of learning curve are expected to be approximately $2.0 million per aircraft for the first six aircraft. A lump-sum cost is not expected; however, exact costs have not been determined.

Mr. **Murtha**. Mr. McDade.

SH-60F PROGRAM

Mr. **McDade**. Thank you.

No money was requested for the SH-60F in fiscal year 1990 because of operational testing deficiencies. The 1991 budget request includes 18 helicopters for $287.1 million.

Have all of the previously identified deficiencies been corrected?

Admiral **Dunleavy**. Yes, sir. The deficiencies have been corrected and the SH-60 Foxtrot is coming along exceptionally well. I can itemize them for you.

Mr. **McDade**. Has the operational testing been completed?

Admiral **Dunleavy**. It is still being conducted right now.

Mr. **McDade**. When do you expect to finish that, Admiral?

Admiral **Dunleavy**. It is this summer.

Mr. McDADE. Do you think it was necessary to gap the line? Were the deficiencies in the program severe enough to gap that line?

Admiral DUNLEAVY. In my personal opinion, no.

AV-8B PROCUREMENT

Mr. McDADE. If I might, let's switch over to the AV-8B. The 1991 budget has no advance procurement funding for FY 1992. Has there been sufficient procurement of the AV-8B to satisfy the current active force program?

General PITMAN. No, sir, there has not. This is a prime issue now in the DOD as to whether we will continue procurement. We have a program objective of ——— aircraft. Through FY 1991, we will have purchased 276 aircraft. We will need additional aircraft if we are to maintain our force levels.

There is no advance procurement in the FY 1991 request. When we make that decision, we are going to have a problem getting the aircraft delivered on time without some advance procurement if the decision is made to continue.

Mr. McDADE. Does it impact unit costs, et cetera?

General PITMAN. Yes, sir.

Mr. McDADE. It will?

General PITMAN. It will delay the introduction of that procurement cycle.

Mr. McDADE. Will it increase the unit cost of those aircraft?

General PITMAN. Yes, sir. Not significantly, but there would be some increased costs, yes, sir.

Mr. McDADE. But not a significant amount you say?

General PITMAN. No, sir. I don't know what that amount would be. I will have to get those figures for you.

Mr. McDADE. Put the best estimate in the record.

Admiral DUNLEAVY. Yes, sir.

[The information follows:]

To protect the reorder lead-time for a FY 1992 buy of AV-8B aircraft, $33.5 million in FY 1991 advance procurement funding would be required. Without long lead funding there would be a production line disruption which results in higher unit costs of approximately 7-10 percent.

Mr. McDADE. What is the status of the talks between Spain and Italy regarding the procurement of the AV-8B for their Navies?

General PITMAN. We just finished our third round of negotiations. Whether the Italians and Spanish buy any AV-8Bs will be based on the radar. They will use it primarily as a fighter to defend their carriers. They need the radar for air defense. We need it for our ground attack mission. So following our third round of discussions, which we completed about a week ago, it looks like we almost have a decision as to who was going to fund what, and how it will be paid for.

The primary concern that I have had is that we have no extra money in the program to pay for this enhancement. So our allies are going to have to carry the lion's share of the cost of development.

Mr. McDade. That becomes a key question. Will they be able to do that? Will they be able to take that cost? Will you have something that will be workable?

General Pitman. They believe they will. The negotiators were almost ready to sign then. There were some minor difficulties, but we believe that we will have them ironed out within a week or so. Then, at least, we will have an agreement to proceed.

The Italians, as you know, have already got their carrier at sea, as do the Spanish. The Spanish already have AV-8Bs, but they really need the radar to meet their operational requirements.

Mr. McDade. We financed part of that radar last year?

General Pitman. Yes, sir, $10 million in R&D.

Mr. McDade. So you are still optimistic even if there is a gap?

General Pitman. Yes, sir, we believe it is going to go through. It has been a very tough process. When you get three countries trying to negotiate for the best deal.

Mr. McDade. What is the status of the Marine Corps plans to establish Reserve AV-8B squadrons?

General Pitman. Sir, the number I gave earlier, the ——— does not include aircraft for the Reserves. That is a POM 1992 issue as we look ahead to the future.

Mr. McDade. What kind of number are we talking about?

General Pitman. It would be probably one or two squadrons, sir. Those are twenty plane squadrons.

Mr. McDade. Thank you, General.

Thank you, Mr. Chairman.

Mr. Murtha. Well, thank you very much.

Let me just say to Major Higgins, who I know is here, how much we admire her tremendous courage during the ordeal that she went through and how we admire the way she handled her duties during that period of time. All of us appreciate her dedication to the Marine Corps and what she went through.

We appreciate very much what she has done for this country and what Colonel Higgins has done for this country. We have a great admiration for her attention to duty and the work that she had done.

Thank you. We will have other questions for the record.

The committee will adjourn until Tuesday, at 10:00 a.m.

[Clerk's note.—Question submitted by Mr. Wilson and the answer thereto follow:]

AH-1W HELICOPTER

Question. Last year, funding was provided for six AH-1Ws for the Marine Corps Reserve to begin to bring their attack helicopter fleet on a par with the active force. Can you tell me where we stand on that program?

Answer. Funding for six AH-1Ws for the Marine Corps Reserve was appropriated but not authorized. Bell Helicopter has signed a letter contract to produce those aircraft. As soon as the funds are authorized and released, the Naval Air Systems Command will proceed with procurement.

[Clerk's note.—End of questions submitted by Mr. Wilson. Questions submitted by Mr. Hefner and the answers thereto follow:]

EA-6B AIRCRAFT

Question. Let me ask you about the EA-6B. You say in your statement that you stopped buying them for budgetary reasons and that you will have to manage them carefully until the Advanced Tactical Surveillance (ATS) plane is delivered.

How many EA-6Bs are you short?

Answer. Based on requirements in the Naval Aviation Report (NAR) submitted March 1989, the EA-6B shortfall will be 13 aircraft in fiscal year 1992. The shortfall will grow as a function of attrition.

Question. When is the ATS scheduled to arrive in the fleet? Are you comfortable with that date?

Answer. ATS is still in the concept development phase, and as yet the fleet introduction date has not been determined. Accordingly, I can not positively state a comfort level.

Question. How many EA-6Bs will you be short when the ATS is deployed?

Answer. I cannot precisely determine the EA-6B shortfall as that is dependent upon ATS fleet introduction. Operational requirements can be met by short-term reassignment of aircraft among squadrons, although this will become increasingly more difficult as the inventory declines through attrition.

Question. The budget has money to begin remanufacturing three EA-6Bs into the Advanced Capability configuration. There is a rumor that the Navy is considering revising that request to use the funds for additional aircraft to help with the shortfall and delay the remanufacture program. Are you aware of this proposal? What do you think about it?

Answer. We are actively reviewing alternatives to alleviate the projected EA-6B shortfall. It is premature to discuss the options because they are still being evaluated. I will have the information to make the decision in the near future.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner. Questions submitted by Mr. Young and the answers thereto follow:]

V-22 AIRCRAFT

Question. General Pitman, as you know, this committee has been a strong proponent of the V-22. You have identified the medium lift shortfall as one of your highest priorities. If the Marine Corps is forced to settle for something less than the V-22 to meet your medium lift shortfall, what do you see as the potential near term and long term impact on military rotorcraft?

Answer. Loss of the V-22 will not mean that the Marine Corps will be unable to carry out its assigned missions. Substitution of a helicopter alternative will result in only marginal warfighting improvements, since the conventional helicopter is rapidly approaching the practical limits of its capabilities with respect to speed, range, and, most importantly, survivability.

Given the number of years it takes to develop and produce a new helicopter, I think the near term impact will be a commitment to continue our dependence on the helicopters we have in service today. With that comes the associated operational limitations imposed by that older technology, and we have discussed those limitations at some length.

The long term impact is more difficult to predict. There is a lot of interest in pursuing the rotorcraft technology that is available, or emerging, today to meet our future requirements. If this country does not follow up on that technology, we can reasonably assume that someone else will develop it. If that happens, we will be faced with two choices; either we buy the system from whoever develops it, or we continue to use what we have.

In either case, the U.S. may forfeit its investment in an entire generation of rotorcraft development and may establish an unnecessary dependence on offshore technology to satisfy its military requirements. Ultimately, we may be in a position to buy an aircraft whose capabilities are similar to those of the tiltrotor but which is not "Made in America."

AV-8B HARRIER AIRCRAFT

Question. General Pitman, the AV-8B is the only U.S. tactical fixed wing aircraft produced in the last ten years which does not have a radar, and this committee has recognized the operational importance of trying to put a radar in as many of the AV-8Bs as we can. What is the significance of the potential such a program has for cooperative development, and follow-on employment, with our NATO allies? What are your thoughts on this?

Answer. The cooperative development program that is now under consideration with the governments of Italy and Spain has several distinct advantages for the Marine Corps, and for the U.S. in general. Spain and Italy, however, are interested in the AV-8B only if it is radar-equipped, and they have tentatively agreed to fund a major portion of the development costs.

If the cooperative development is successful, we will have made another step toward interoperability in the NATO arena. This is especially important as Marine Corps AV-8Bs continue their shipboard deployments to the Mediterranean Sea. With the U.S., Spain, and Italy operating the same aircraft in that theater, we have a greatly enhanced operational and support infrastructure that will provide a force multiplier in that region should the need arise.

Some critics of various alliances have long argued for increased burdensharing. By having the radar-equipped Harrier, Spain and Italy will be in a position to undertake a more active role in defense of the southern region of NATO.

Thus, there are advantages to all concerned in this cooperative development, and when the aircraft are fielded, the advantages will be even more pronounced.

CH-53E HELICOPTER

Question. General Pitman, your statement makes the point that your requirement for CH-53Es is 191 aircraft for the Marine heavy lift mission. It is my understanding that the Marines actually need additional CH-53s. Is that so?

Answer. Our procurement objective for CH-53Es is 191 aircraft for the heavy lift mission which includes 40 aircraft for attrition.

Through FY 1990, we will have procured 112 aircraft. This requirement, as with all other requirements, is currently under review given the declining top line and changes in the world political situation.

Question. The CH-53E for the Marine Corps and the MH-53E for the Navy's airborne minesweeping mission were procured in the past under a multi-year procurement which I understand saved us almost $100 million. How much could you save if you began a multi-year procurement of the CH-53E and the MH-53E in FY 1992?

Answer. The Marine Corps CH-53E and the Navy MH-53E were procured during FY 1986-89 under a 4 year, 14 aircraft per year multi-year contract. This acquisition profile was $92.8 million less than an annual procurement profile and represented a 12.8 percent savings. A FY 1992-94 multi-year procurement, based on current FYDP quantities and the previous 12.8 percent level of savings, would result in $163 million savings over the same annual procurement profile.

Question. Admiral Dunleavy, what would you think about a multi-year procurement contract for the Marine Corps CH-53E and the Navy's MH-53E?

Answer. The CH/MH-53E requirements and configuration are stable; both aircraft are technically mature and certified for full rate production. There is a high degree of confidence in the contractor's ability to perform to the Navy's satisfaction. The contractor has extensive experience producing these helicopters under a FY 1986/FY 1989 multi-year contract. However, a CH/MH-53E multi-year procurement would be premature until the COEA is complete.

EA-6B

Question. Admiral Dunleavy, it is my understanding the Navy will experience a serious shortfall in its EA-6B inventory. Are you reviewing this situation? What options are being considered?

Answer. We are actively reviewing alternatives to alleviate the projected EA-6B shortfall. It is premature to discuss options because they are still being evaluated. I will have the information to make the decision in the near future.

A-6

Question. Admiral Dunleavy, this Committee has supported the A-12, but we have also supported continued modernization of the A-6 for the Navy and the Marine Corps. It is my understanding that the Navy's Operational Advisory Group priorities have had to the readjusted because of funding constraints. How much funding would be required in FY 1991 to fund those items that fell out of the Modernization program?

Answer. The current budget reflects the highest concerns of Naval Aviation in regards to the A-6 modernization program. Periodic Operational Advisory Group meetings may re-prioritize fleet requirements based on operational needs. These priorities will proceed through the budget process and may end up in future budgets as Naval Aviation's A-6 modernization concerns.

[CLERK'S NOTE.—End of questions submitted by Mr. Young. Questions submitted by Mr. Livingston and the answers thereto follow:]

NAVAL RESERVE FORCE

Question. Admiral, can you tell this Subcommittee what role the Naval Air Rserve has in providing fleet logistics support for the Active and Reserve Navy?

Answer. The Naval Reserve Force exists to train Selected Reservists to respond to Fleet requirements during time of mobilization. In peacetime, the Naval Air Reserve provides quick response Fleet logistics support as a by-product of that mobilization training. The air logistics support is designed to move intra-theater passengers and cargo from ports of entry to rapidly changing Fleet locations.

C-130'S FOR NAVAL RESERVE

Question. Last year this Subcommittee appropriated funds for the first 2 C-130 aircraft for the Naval Reserve. This year, the President's request includes two more C-130 aircraft for the Naval Reserve. Are the Navy's plans still to locate the first 4 C-130's at New Orleans?

Answer. Current plans reflect all four aircraft will be assigned to VR-54 in New Orleans.

Question. What are the total requirements for C-130 type aircraft?

Answer. The Navy has determined, and substantiated by a 1986 Center for Naval Analysis study, a requirement for 29 heavy gross weight turboprop aircraft to support carrier battle groups in a wartime environment. The Navy currently maintains seven C-130F aircraft, with two aircraft appropriated (but not authorized) in FY 1990 and two budgeted in FY 1991, leaving a requirement for 18 additional C-130 type aircraft.

Question. I understand that last year there was a 34 percent increase in cargo requests totaling 39 million pounds of cargo. Are C-130 aircraft better suited for cargo than the current fleet of C-9 aircraft? Explain.

Answer. Absolutely. The C-130 is widely recognized as one of the most versatile air cargo machines in the world. With its tail loading capability, it can carry many critical items (large aircraft engines, helicopters blades, oversize ship repair components) that the C-9 cannot. Additionally, because of its excellent cross-wind handling characteristics and its unique ability to operate from short airfields, the C-130 is superbly suited for wartime logistics requirements.

Question. I understand the Navy's current plans are to base C-130 squadrons at three other locations after the first 4 are based at New Orleans. These locations are Martinsburg, West Virginia, Glenview, Illinois, and Pt. Mugu, California. Is this accurate?

Answer. That is correct.

Question: Where will the second squadron of aircraft be located?

Answer. The second squadron would be located at Martinsburg, West Virginia.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston. Questions submitted for the record and the answers thereto follow:]

AIRBORNE SELF-PROTECTION JAMMER

Question. The Airborne self-protection jammer (ASPJ) program began in 1976 as a joint Air Force and Navy program. Recently, poor test results and delays have plagued the program and resulted in the fiscal year 1990 Department of Defense appropriation being reduced by almost $375 million. The fiscal year 1991 budget request includes funding for the Navy effort but there is no Air Force program.

What is the current status of testing on the development and production verification models?

Answer. Testing on the development models is complete and was the basis for the production decision for the Lot 1 contract. Three production verification units have been delivered to date. Performance testing is just commencing, and there have been no problems to date.

Question. In you opinion, why did the Air Force leave the program?

Answer. In my opinion, the Air Force decision to cancel participation in the ASPJ program was affordability-ASPJ funding was offered up to protect programs they considered to be higher priority.

Question. Is there any reason, as far as you can see, for the Navy to cancel the program?

Answer. The Navy requirement for ASPJ is still valid and there is no reason to cancel the program.

Question. Is there a follow-on to ASPJ in development by the Air Force or the Navy?

Answer. There is no other system in production or in development by either the Air Force or Navy that provides the capability of ASPJ.

Question. What does the Air Force defection mean for the cost of the Navy program? Is it economical or affordable for the Navy program? Is it economical or affordable for the Navy to continue buying the system and is the dual source competitive strategy still workable?

Answer. R&D funding (for operational test and evaluation) completes in fiscal year 1991. The contract for 100 Lot 1 production units was signed on October 6, 1989 using fiscal year 1989 procurement funds; therefore, procurement funding for fiscal year 1990 was not required. As the production program matures, the unit cost will decrease and be comparable with less capable systems that are currently available. The Air Force defection has required the Navy to review the acquisition strategy for ASPJ. An option is to down select to a single contractor in a future production lot. Preliminary analysis indicates that if down selecting to a single contractor is accomplished for a Navy-only program, the cost will not differ significantly from the original program, with cost growth to the Navy being less than 10 percent.

[CLERK'S NOTE.—End of questions submitted for the record.]

TUESDAY, MARCH 27, 1990.

WEAPONS AND OTHER PROCUREMENT, NAVY

WITNESSES

REAR ADM. RICHARD D. MILLIGAN, U.S. NAVY, DIRECTOR, OFFICE OF BUDGET AND REPORTS, OFFICE OF THE COMPTROLLER OF THE NAVY

REAR ADM. (SELECT) THEODORE LOCKHART, U.S. NAVY, DIRECTOR, SURFACE COMBAT SYSTEMS DIVISION, OFFICE OF THE ASSISTANT CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

INTRODUCTION

Mr. **DICKS**. The Committee will come to order.

We want to welcome our witnesses today, Rear Admiral Richard D. Milligan, the Director of the Office of Budget and Reports within the Office of the Navy Comptroller; and Rear Admiral (Select) Theodore C. Lockhart, the Director of the Surface Combat Systems Division in the Office of the Assistant Chief or Naval Operations for Surface Warfare.

Today marks the first appearance of you both in your current assignments. We will place your biographies and entire statements in the record. Please summarize your statements and then we will proceed with the questions. Admiral Milligan.

SUMMARY STATEMENT OF ADMIRAL MILLIGAN

Admiral **MILLIGAN**. Good afternoon, Mr. Chairman.

I appreciate the opportunity to present an overview of the fiscal year 1991 President's budget request for the Other Procurement, Navy appropriation. Rear Admiral (Select) Lockhart will follow me with a brief presentation covering the Weapons Procurement, Navy appropriation.

When my colleague and I have completed our statements, we will answer questions for you. I will try to keep my remarks as brief as possible.

As the world changes with greater rapidity than at any time since World War II, it is vitally important that we carefully allocate our limited resources to ensure our future forces are mobile, flexible, well trained, well equipped, and able to respond quickly and with sufficient strength, to meet all challenges of our national interest. The programs budgeted in the Other Procurement, Navy account in fiscal year 1991 are pivotal to the Navy's transition to the new realities faced in the nineties. Mr. Chairman, as in previous years, we have emphasized major investment in support of the Navy's No. 1 warfare priority, anti-submarine warfare, ASW. It is important to note that the character of the OPN appropriation has changed in fiscal year 1991 because of several large inter-appropriation transfers. I will address just one of those. The largest change in OPN is the funding of installation of modernization equipment in this account. In fiscal year 1990, all funding associated with the installation of moderation equipment was appropriated in budget activity 1 of OPN.

Consistent with congressional direction, installation costs have been incorporated into the end item procurement costs commencing in the fiscal year 1991 budget resulting in an increase of hundreds of line items when compared to the fiscal year 1990 budget.

The cost of design services, nuclear alterations, program support and other modernization support efforts not specifically tied to an end items will continue to be budgeted in budget activity 1 separate from the end items. Of course, this is our first experience in executing the modification installation program in the procurement account. At the end of this year's experience, we will report the results to this Committee. As a reference point, to date we have obligated 56 percent of the fiscal year 1990 installation line.

The majority of the programs with other than installation cost growth are related to ASW modernization. Anti-submarine warfare is again our number one warfighting priority and this OPN budget reflects that priority. Some examples of our ASW initiative include ships' sonar improvements with the procurement of the SQQ-89 system and the BQQ-5 system. Additionally in fiscal year 1991, we support the procurement of the BSY-1 module and screening repair facility in Pearl Harbor, the BYS-1 software maintenance facility in Newport, Rhode Island, and the BSY-2 software support facility in support of ASW electronics in Newport, Rhode Island. The increase for ship sonars is due to the large SQQ-89 and BQQ-5 procurements. These two programs are tied to ship overhaul schedules for surface ships and submarines.

We have budgeted $280 million in fiscal year 1991 for nine SQQ-89 systems and ancillary equipment. Our budget for SSN modernization reflects a request of $127 million in fiscal year 1991 to procure 5 BQQ-5 systems plus other needed support equipment.

The BSY-2 submarine combat system will be installed in our new SSN-21 class submarine to provide greater and more flexible firepower. In the fiscal year 1991 budget, we are requesting $144 million for one system to be used as a software support activity. This system will be used to upgrade and prove out software modifications to the system as the program matures, which will obviate the need to contract out for this frequent service.

In summary, we have examined our ongoing programs with affordability in mind. We know that we must maintain our momentum in cost reduction techniques such as competition if we are to minimize our procurements. We believe that this OPN budget request reflects this structure and is sound, well priced, and balanced.

The funding levels presented to this Committee are essential for fleet modernization as we move to a smaller, more effective and sophisticated fighting force.

This concludes my brief statement. I will answer questions after my fellow officer addresses the WPN appropriation.

Mr. Dicks. Thank you very much, Admiral. It is nice to see both of you on your maiden voyage.

[The statement of Admiral Milligan follows:]

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HOUSE OF REPRESENTATIVES

STATEMENT OF

REAR ADMIRAL RICHARD D. MILLIGAN, U.S. NAVY

DIRECTOR FISCAL MANAGEMENT DIVISION,

OFFICE OF THE CHIEF OF NAVAL OPERATIONS

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE

HOUSE APPROPRIATIONS COMMITTEE

ON

FISCAL YEAR 1991 OTHER PROCUREMENT, NAVY

27 MARCH 1990

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THE COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

REAR ADMIRAL RICHARD D. MILLIGAN

UNITED STATES NAVY

Rear Admiral Milligan, a native of Matavan, New Jersey, attended the U.S. Naval Academy graduating with the class of 1959.

His first assignment was on the Norfolk based destroyer USS AULT (DD 698) where he served as Combat Information Center Officer and then Operations Officer. In June 1962, he reported to the Sixth Naval District Staff in Charleston, South Carolina, where he served as Aide to the Commandant until 1964.

Next came successive sea tours, first as Commanding Officer of the New London, Connecticut, based USS SOMERSWORTH (EPCER 849) from May 1964 through November 1965 and then as Executive Officer of USS JOSEPH K TAUSSIG (DE 1030) at Newport, Rhode Island, through November 1967. Following one year at the U.S. Naval-Postgraduate School at Monterey, California, where he received a Masters Degree in Management, Admiral Milligan served for three years in the General Planning and Programming Division of the Office of the Chief of Naval Operations, Washington, D.C.

Returning to sea in November 1971, Admiral Milligan commanded USS MCMORRIS (DE 1036) through August 1973, and then USS WHIPPLE (FF 1062) through July 1975, both homeported at Pearl Harbor. He returned to Washington, D.C., in August 1975, attended the Industrial College of the Armed Forces, and then served as Division Director of the Financial Resources Division, Bureau of Naval Personnel, prior to reporting to the Office of the Comptroller of the Navy in August 1977.

In the Office of the Comptroller, Admiral Milligan served as a Budget Analyst in the Operations Division, as Head of the Appropriations Committee Liaison Office, then as Deputy Director and then as Acting Director of the Investment and Development Division. For the year prior to his detachment in August 1981, he served as Assistant Director, Office of Budget and Reports. In May 1982, after attending a series of schools, Admiral Milligan assumed command of USS WAINWRIGHT (CG 28), homeported in Charleston, South Carolina, and on September 15, 1983, became the sixteenth Commanding Officer of USS NEW JERSEY (BB 62), homeported in Long Beach, California, serving in that position until September 7, 1985. He reported to the Naval Air Systems Command in October 1985 where he served as Comptroller until assuming command of Cruiser-Destroyer Group TWO at Charleston, South Carolina, in October 1987. Admiral Milligan has served as Director of Budget and Reports, NAVCOMPT/Director, Fiscal Management Division (OP 82) at the Pentagon since September 5, 1989.

Admiral Milligan has been awarded the Legion of Merit (with Gold Stars in lieu of second, third and fourth awards), the Bronze Star and the Meritorious Service Medal. He is married to the former Mary Bourke Reid of Roanoke, Virginia. They have three children: Mary Hunter, Bourke, and Reid.

PREPARED STATEMENT OF REAR ADMIRAL RICHARD D. MILLIGAN, U.S. NAVY

Mr. Chairman and members of the Committee, I appreciate the opportunity to appear before you and present the FY 1991 Budget request for the Other Procurement, Navy (OPN) appropriation.

Funds in this appropriation procure investment equipment and material which we need to modernize and sustain our sea and shore units. These items range from the latest electronic sensors and weapons systems to trucks, training equipment and spare parts. As the world changes with greater rapidity than any time since World War II, it is vitally important that we carefully allocate our limited resources to ensure our future forces are mobile, flexible, well trained, well equipped, and able to respond quickly and with sufficient strength to meet all challenges to our national interest. Programs budgeted in OPN in FY 1991 are pivotal to the Navy's transition to the new realities faced in the nineties.

As in previous years, we have emphasized major investments in support of the Navy's number one warfare priority, anti-submarine warfare (ASW). Our budget request includes substantial growth for the AN/SQQ-89 Surface ASW Combat

System, the AN/BQQ-5 Submarine Sonar System, the AN/BSY-2 Submarine Combat System, and the Sound Surveillance System (SOSUS).

It is important to note that the character of the Other Procurement Navy appropriation has changed in FY 1991 because of several large inter-appropriation transfers. These transfers include $1.2 billion for Installation of Modernization Equipment from Operation and Maintenance, Navy (O&M,N) and Operation and Maintenance, Navy Reserve (O&M,NR); $348.2 million for the Industrial Depot Maintenance Equipment from the Navy Industrial Fund; and $291.3 million for Ammunition to Weapons Procurement, Navy (WPN), all made by Congressional direction. Other transfers are $58 million for First Destination Transportation from O&M,N and $42.9 million for Special Operating Forces to the Procurement, Defense Agencies appropriation. We believe it is sound public policy to budget for the Installation of Modernization Equipment, Industrial Depot Maintenance Equipment, and First Destination Transportation in OPN in order to reflect the full cost of capital investment items in the investment account. The transfer of ammunition funding to WPN allows more centralized management of munitions. It should be noted that, discounting these transfers, the Other Procurement Navy appropriation request of $6.1 billion represents an overall decrease of $0.5 billion for FY 1991 from the Revised FY 1990/1991 Budget of last April. This $0.5 billion decrease will not adversely degrade our modernization effort but will leave us with little flexibility to react to emergent execution problems.

The Fleet Modernization Program, which is primarily supported with programs financed in Budget Activities 1, 2, and 4, ensures our fleet maintains sound engineering plants; a modern tactical data processing capability; and up-to-date sensors, weapons, and communications systems while steadily increasing its useful service life. This is accomplished by replacement of equipments such as pumps, air compressors and nuclear components and incorporation of technological advances through installation of modernization kits for sonars, radars, and fire control systems. Since many of these equipments and modernization kits are installed during regular ship maintenance availabilities, it is not necessary to procure all items in a single year. Rather, procurement is phased such that these items normally deliver shortly before each individual ship overhaul period begins. For major systems, the procurement program will extend over a period of several years; long enough for each of the related platforms to go through a maintenance availability. Many of the OPN funded equipments and modernization kits are not tied to lengthy maintenance availabilities and are often installed during short pierside availabilities.

Budget Activity 1 finances Ship's Support Equipment. The FY 1991 request, as shown in Table 2, is $1,339.0 million. Funding in this budget activity provides the necessary hull, mechanical, and electrical equipment required to maintain and modernize the fleet. We also fund procurement of small boats, industrial plant equipment, nuclear alterations, and modernization support in this budget activity. In FY 1990 all funding associated with Installation of Modernization Equipment was appropriated in this budget activity. Consistent with Congressional direction, installation costs have been incorporated into the end item procurement costs commencing in FY 1991. Costs of design services, nuclear alterations, program support and other modernization support efforts will continue to be budgeted in Budget Activity 1, separate from the end items.

The FY 1991 request for Reactor Plant Equipment is $350.2 million. This provides for the procurement of replacement reactor cores, power units, and other reactor plant components and equipment. Replacement cores and power units are the assemblies of nuclear fuel and necessary associated structural and reactor control equipment required for the periodic refueling of nuclear powered ships. For cores and power units, the requested OPN funds complement those requested in the Shipbuilding and Conversion, Navy (SCN) account. The funding requested will meet the refueling needs of the Navy in a manner most efficient to the government while ensuring adequate workload to support the industrial base.

The Strategic Platform Support Equipment request for $58.4 million is to provide for hull, mechanical and electrical equipment required to support the unique operating tempo of SSBN submarines as well as industrial plant and training equipment at TRIDENT Refit Facilities and Training Facilities on both coasts.

Other equipment in this budget activity primarily consists of modernized propulsion equipment, systems to control pollution and systems designed to improve safety and firefighting capabilities of our fleet. While these systems are generally of lesser technology than many of our weapons and combat suites, they are crucial to keeping our ships on station worldwide, extending the useful service life of ships and protecting our sailors.

Budget Activity 2, Communications and Electronics Equipment, the largest in the OPN appropriation, is displayed in Table 3. The total request is for

$2,021.0 million. Equipment and modernization kits procured in this budget activity are for improvement of surface and air search radars; upgrade of systems used for detection, tracking, localization, and classification of submarines; and providing the capability of deceiving, intercepting, and analyzing airborne, surface, and sub-surface platform electromagnetic radiations for the purpose of executing an effective surveillance and intelligence collection capability.

The FY 1991 request for Ship Radars of $97.3 million will provide the fleet with detection, tracking, and identification equipment to meet the challenges of high speed attack capabilities of low-flyers, anti-ship missiles and modern aircraft. Planned improvements include reliability upgrades to the AN/SPS-40 air search radar to increase the mean time between failures. Other initiatives are the procurement of the AN/SYS-( ) Integrated Automatic Detection and Tracking (IADT) system which allows correlation of data from up to three radars, determines target tracks, and provides a single target output to the command/decision system and the procurement of the MK-23 Target Acquisition System which provides rapid reacting, fully automatic detection, even in jamming environments, for the improved Point Defense Missile System.

We are requesting $472.4 million for Ship Sonars. This request includes $280.2 million for AN/SQQ-89 Surface ASW Combat Systems. These systems integrate and optimize the discrete functions of an improved hull-mounted sonar, towed array sonar, sonobuoy processing equipment and ASW fire control system. For submarine sonars we have requested $127.3 million to continue to upgrading installed AN/BQQ-5 Sonar Systems onboard our SSN-688 class submarines. The AN/BQQ-5 is designed to counter the threat of reduced radiated noise levels and improved sonar capabilities in foreign submarines through improvements in long range detection, classification and localization and by providing increased reliability and maintainability. The budget request also provides for a number of modernization efforts for sonar domes, towed array systems equipment and processing equipment which is a vital part of our overall ASW effort.

The request of $349.6 million for ASW Electronics Equipment supports a diverse group of ASW-related equipment which, along with Ship Sonars, forms the backbone of our response to newest submarine threat. The Surface Ship Torpedo Defense (SSTD) program request of $17.5 million is for the AN/SLQ-25 NIXIE torpedo countermeasure system. The submarine countermeasure system is the Submarine Acoustic Warfare System (SAWS) which will provide an enhanced survival capability against torpedoes while also confusing enemy sensors. The request of $229.0 million for Submarine Advanced Combat Systems provides funding for a Software Maintenance Facility and a Modular Screening and Repair Facility for the AN/BSY-1 Submarine Combat System, and an AN/BSY-2 Submarine Combat System Software Support Facility for SSN-21 class submarines. Other programs in this category include upgrading of our worldwide underwater sound surveillance system (SOSUS), improvements to the Surveillance Towed Array Sensor (SURTASS), and enhancements to Carrier ASW Modules which support ASW aircraft by providing real time and post mission analysis of acoustic signals.

We have requested $130.3 million for Reconnaissance and Electronic Warfare Equipment. This funding will provide the fleet with systems that have the capability to passively detect electromagnetic emissions. Included is $92.5 million for AN/SLQ-32, a family of modular shipborne electronic warfare equipment, which will be installed in most surface ships. Additionally, $29.7 million funds an AN/WLQ-4(V)1 Submarine Electronic Support Measure (ESM) System Trainer in support of SSN-21 class attack submarines.

The budget request for Other Electronic Equipment is $243.8 million. The largest program within this category is the Navy Tactical Data System (NTDS), which provides warships with rapid integration of ship sensor information, analysis and display of tactical information, and designation of weapons systems to incoming targets. Funding of $92.5 million has been requested for this system. Also procured in this category are Global Positioning System (GPS) receivers which will provide continuous, extremely accurate navigational data for operating forces.

For Aviation Electronic Equipment, we have requested $37.1 million for procurement of electronic equipment to support Naval and Marine aviation shore activities, shipboard aircraft control equipment and secure identification systems. Within this category is the Marine Air Traffic Control and Landing Systems (MATCALS) which provides a fully automatic air traffic control and landing system via subsystems of radars, approach and landing systems, and support equipment.

Our budget request for Other Shore Electronic Equipment is $169.6 million. This includes funding of $80.6 million for one Relocatable Over The Horizon Radar (ROTHR), a wide area surveillance system which will provide accurate targeting information to tactical commanders afloat.

We have requested $198.8 million for Communications Equipment in FY 1991.

This includes funding for general shipboard communications, unique submarine communications, satellite communications terminals and other equipment for shipboard communication centers. Of these systems, those involving satellite communications account for most of the funding. This includes command and control systems using Ultra High Frequency (UHF), Super High Frequency (SHF) and extremely High Frequency (EHF) bands which are critical in times of national emergency.

The Strategic Platform Support Equipment request is for $147.9 million. This includes electronic equipment for the TRIDENT Training Facilities and equipment upgrades for our SSBN submarines including the AN/BQQ-5E sonar.

Our request for Cryptographic Equipment of $160.4 million is to procure a wide variety of secure voice equipment. Funding of $48.9 million is for the procurement of the TSEC/KYV-5, the cryptographic module for the Advance Narrowband Digital Voice Terminal (ANDVT) which satisfies requirements for secure narrowband communications which cannot be met by existing equipment. Other programs of note in this area are the TSEC/KY-71/72 (STU III) equipment which improves the secure voice capability presently provided by AUTOSEVOCOM I, and the TSEC/KG-84, a general purpose key generator which is designed to serve as the future standard link encryption devise for low to medium speed record or data systems.

The request for Aviation Support Equipment in Budget Activity 3 is $283.8 million. As shown in Table 4 this budget activity is comprised of Sonobuoys, Air Launched Ordnance and Aircraft Support Equipment. Air Launched Ammunition has been transferred to WPN in FY 1991.

Our request for Sonobuoys is $73.3 million and it considers the number of ASW shipboard air groups and shore based ASW patrol squadrons to be supported, actual and planned peacetime usage for these forces and training allowance requirements. The largest amount of funding is requested for the AN/SSQ-53 Directional Low Frequency Analysis and Recording (DIFAR) sonobuoy, which is a passive directional buoy used during the target localization phase of an ASW encounter. This request also includes funding for the AN/SSQ-36 Bathythermograph (BT) Sonobuoy, the AN/SSQ-62 Directional Command Active Sonobuoy System (DICASS), and Signal Underwater Sound (SUS) devices.

The request for Air Launched Ordnance of $70.4 million reflects funding of $41.3 million for procurement of airborne expendable countermeasures which includes chaff, infrared flares and expendable jammers. Funding is also included in this request for Cartridges and Cartridge-Activated Devices, Aircraft Escape Rockets, Marine Location Markers and Jet Assisted Take Off (JATO) rockets.

We are requesting $140.1 million for Aircraft Support Equipment. Included are funds to upgrade, replace and modernize our worldwide Weapons Range Support Equipment, Aircraft Rearming Equipment, Airborne Mine Countermeasures Equipment, and Meteorological Equipment.

As shown in Table 4, the request for Budget Activity 4, Ordnance Support Equipment, is $600.6 million, of which $98.5 million is for Installation of Modernization Equipment. The primary change to this activity is that funding for Ship Gun Ammunition has been transferred to WPN.

The Strategic Platform Support Equipment funding request of $106.6 million provides for ordnance support, ship alterations and test equipment for the TRIDENT Refit Facility (TRIREFAC) located at Naval Submarine Base (NSB), Bangor, Washington and numerous other facilities. A significant modernization program is the Combat Control System MK 2 (CCS MK 2) which provides the ADCAP torpedo capability plus display and simulator improvements important to operability enhancements in SSBN platforms. In addition, funds are requested for the procurement of Strategic Weapons Systems (SWS) equipment for deployed SSBNs and shore sites to support the POSEIDON (C-3), TRIDENT I (C-3), TRIDENT II (C-4), and TRIDENT II (D-5) programs.

Within the Gun and Missile System Equipment categories, we plan to procure a number of alterations to modernize fire control and launching systems for the Terrier, Tartar, Harpoon, AEGIS, NATO Seasparrow and Tomahawk systems. These modification kits improve performance, reliability and maintainability. The majority of these funds, $86.2 million, provides equipments for shore facilities and for shipboard upgrades to support the battle readiness of AEGIS Cruisers and Destroyers. Our request also funds procurement of two Vertical Launch Systems for DD-963 Class Destroyers at a cost of $45.3 million.

The Other Ordnance Support Equipment category has a request for $29.4 million. Included in this request are funds for the following programs: Unmanned Seaborne Targets, Stock Surveillance, Anti-Ship Missile Decoy System, Calibration Equipment, and Other Ordnance Training Equipment.

The request of $74.2 million for Other Expendable Ordnance provides for support of fleet proficiency training, mine warfare and mine countermeasure training, and improved stockpile mine performance. Also in this category is the Shipboard Expendable Countermeasures program which provides for Anti-Ship Missile Decoys deployed from the MK-36 Decoy Launching System.

The requested funding of $85.5 million for ASW Support Equipment will fund improvements to submarine fire control systems to enhance over the horizon targeting, ADCAP capability and display presentations. One of the programs in this category is the Combat Control System MK-2 (CCS MK-2) Obsolete Equipment Replacement (OER) program, which also helps to standardize hardware and software on SSNs and SSBNs. Our effort to replace obsolete components with modernized versions will result in improved reliability, maintainability and operability.

Our budget request for Civil Engineering Support Equipment, Budget Activity 5, is $88.5 million. This budget supports procurement of passenger carrying vehicles, trucks and trailers, construction, earthmoving, maintenance, fire fighting, weight handling, amphibious and specialized equipment, combat construction support equipment, pollution control equipment, and equipment used for construction of underwater facilities. This equipment supports both operating forces and the shore establishment.

The request of $478.4 million for Supply Support Equipment, Budget Activity 6, finances the procurement of forklift trucks and other materials handling equipment used at Navy installations and aboard ships; automated materials handling systems; investment type support equipment; reprographics equipment; and first destination transportation costs for procurement acquisitions. In addition, financing for certain classified projects is included in this activity.

For Personnel and Command Support Equipment in Budget Activity 7, we are requesting $748.6 million. Requested funding in the area of Training Equipment will support procurement of a variety of devices for maintenance, operator, team and refresher training for damage control and combat systems introduced into the fleet. For Command Support Equipment, our request is for $160.2 million which will procure a wide variety of investment equipment in the areas of Medical Support, Oceanographic Support, Naval Reserve Support, Operating Forces Support and Intelligence Support. In addition, the budget request for the Computer Acquisition Program will streamline the procurement of Automated Data Processing Equipment Navy-wide.

The budget request for Spares and Repair Parts, Budget Activity 8, is $521.7 million. This funding will provide for equipment spare parts prior to transitioning to our Navy Supply System. Spares are provided to fleet units concurrently with installation of a new or modernized system. If the spares are not yet carried within the supply system, they are funded from Initial Spares. Other spares are funded from Outfitting Spares if these items have transitioned to the supply system but the fleet unit has just received an improved or upgraded system.

In summary, our request leaves little flexibility to respond to execution adjustments. The funding levels presented to this Committee are essential for fleet modernization as we move to a smaller, more effective and sophisticated fighting force.

TABLE 1
OTHER PROCUREMENT, NAVY
BUDGET ACTIVITIES
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
TOTAL OPN	4,752.8	7,779.8	6,081.5
0 SHIPS SUPPORT EQUIPMENT	620.5	3,580.5	1,339.0
0 COMMUNICATIONS AND ELECTRONICS EQUIP	1,399.5	1,562.8	2,021.0
0 AVIATION SUPPORT EQUIPMENT	487.7	577.8	283.8
0 ORDNANCE SUPPORT EQUIPMENT	1,051.6	733.1	600.6
0 CIVIL ENGINEERING SUPPORT EQUIPMENT	111.6	99.7	88.5
0 SUPPLY SUPPORT EQUIPMENT	109.7	143.1	478.4
0 PERSONNEL AND COMMAND SUPPORT EQUIP	444.8	669.3	748.6
0 SPARES AND REPAIR PARTS	527.5	413.6	521.7

OTHER PROCUREMENT, NAVY
BUDGET ACTIVITIES
NORMALIZED FOR TRANSFERS
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
TOTAL OPN	4,348.0	4,192.4	4,529.3
0 SHIPS SUPPORT EQUIPMENT	554.7	705.6	595.7
0 COMMUNICATIONS AND ELECTRONICS EQUIP	1,399.5	1,562.8	1,727.3
0 AVIATION SUPPORT EQUIPMENT	346.4	407.4	282.8
0 ORDNANCE SUPPORT EQUIPMENT	853.8	528.0	502.1
0 CIVIL ENGINEERING SUPPORT EQUIPMENT	111.6	99.7	88.5
0 SUPPLY SUPPORT EQUIPMENT	109.7	143.1	420.4
0 PERSONNEL AND COMMAND SUPPORT EQUIP	444.8	332.2	390.8
0 SPARES AND REPAIR PARTS	527.5	413.6	521.7
TRANSFERS IN AND OUT			
0 TRANSFER-OUT OF AMMUNITION	(308.5)	(351.0)	-
0 TRANSFER-IN INSTALLATION OF MODERNIZATION EQUIPMENT		(2,856.8)	(1,146.1)
0 TRANSFER-OUT SPECIAL OPERATING FORCES	(96.4)	(42.6)	
0 TRANSFER-IN FIRST DESTINATION TRANSPORTATION			(58.0)
0 TRANSFER-IN INDUSTRIAL DEPOT MAINTENANCE EQUIPMENT		(337.1)	(348.2)

TABLE 2
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 1
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
SHIPS SUPPORT EQUIPMENT	620.5	3,580.5	1,339.0
0 REACTOR PLANT EQUIPMENT	280.5	370.4	350.2
0 STRATEGIC PLATFORM SUPPORT EQUIPMENT	38.4	87.7	58.4
0 OTHER SHIPS SUPPORT EQUIPMENT	301.6	3,122.3	930.4

BUDGET ACTIVITY 1
NORMALIZED FOR TRANSFERS
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
SHIPS SUPPORT EQUIPMENT	554.7	705.6	595.7
0 REACTOR PLANT EQUIPMENT	280.5	370.4	286.7
0 STRATEGIC PLATFORM SUPPORT EQUIPMENT	38.4	87.4	58.4
0 OTHER SHIPS SUPPORT EQUIPMENT	235.8	253.9	250.6
TRANSFERS EFFECTIVE IN BA 1 (NON-ADD)			
INSTALLATION OF MODERNIZATION EQUIPMENT		(2,856.8)	(743.3)
SPECIAL OPERATING FORCES	(65.8)	(18.1)	

TABLE 3
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 2
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
COMMUNICATIONS AND ELECTRONICS EQUIP	1,399.5	1,562.8	2,021.0
O SHIP RADARS	110.9	93.4	97.3
O SHIP SONARS	342.7	327.5	472.4
O ASW ELECTRONICS EQUIPMENT	95.5	302.1	349.6
O RECONNAISSANCE AND ELECTRONIC WARFARE	82.7	123.5	130.3
O OTHER ELECTRONIC EQUIPMENT	157.5	139.6	243.8
O AVIATION ELECTRONIC EQUIPMENT	31.4	77.7	37.1
O OTHER SHORE ELECTRONIC EQUIPMENT	259.8	109.1	169.6
O COMMUNICATIONS EQUIPMENT	51.0	156.0	198.8
O SHORE COMMUNICATIONS EQUIPMENT	24.5	12.9	13.8
O STRATEGIC PLATFORM SUPPORT EQUIPMENT	58.9	95.7	147.9
O CRYPTOGRAPHIC EQUIPMENT	148.8	120.4	160.4
O DRUG INTERDICTION	35.9	4.9	0

BUDGET ACTIVITY 2
NORMALIZED FOR TRANSFERS
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
COMMUNICATIONS AND ELECTRONICS EQUIP	1,399.5	1,562.8	1,727.3
O SHIP RADARS	110.9	93.4	67.7
O SHIP SONARS	342.7	327.5	433.5
O ASW ELECTRONICS EQUIPMENT	95.5	302.1	333.0
O RECONNAISSANCE AND ELECTRONIC WARFARE	82.7	123.5	92.7
O OTHER ELECTRONIC EQUIPMENT	157.5	139.6	172.5
O AVIATION ELECTRONIC EQUIPMENT	31.4	77.7	32.4
O OTHER SHORE ELECTRONIC EQUIPMENT	259.8	109.1	169.6
O COMMUNICATIONS EQUIPMENT	51.0	156.0	130.2
O SHORE COMMUNICATIONS EQUIPMENT	24.5	12.9	13.8
O STRATEGIC PLATFORM SUPPORT EQUIPMENT	58.9	95.7	147.9
O CRYPTOGRAPHIC EQUIPMENT	148.8	120.4	134.1
O DRUG INTERDICTION	35.9	4.9	0
INSTALLATION OF MODERNIZATION EQUIPMENT			(293.7)

TABLE 4
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 3
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
AVIATION SUPPORT EQUIPMENT	487.7	577.8	283.8
O SONOBUOYS	132.9	158.9	73.3
O AIR LAUNCHED ORDNANCE	195.3	246.5	70.4
O AIRCRAFT SUPPORT EQUIPMENT	159.6	172.3	140.1

BUDGET ACTIVITY 3
NORMALIZED FOR TRANSFERS
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
AVIATION SUPPORT EQUIPMENT	346.4	407.4	282.8
O SONOBUOYS	132.9	158.9	73.3
O AIR LAUNCHED ORDNANCE	54.0	76.1	70.4
O AIRCRAFT SUPPORT EQUIPMENT	159.6	172.3	139.1
TRANSFERS EFFECTIVE IN BA 3 (NON-ADD)			
AMMUNITION	(141.3)	(170.4)	
INSTALLATION OF MODERNIZATION EQUIPMENT			(1.0)

TABLE 5
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 4
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
ORDNANCE SUPPORT EQUIPMENT	1,051.6	733.1	600.6
O SHIP GUN AMMUNITION	111.6	130.1	0.0
O SHIP GUN SYSTEM EQUIPMENT	6.5	9.1	15.5
O SHIP MISSILE SYSTEM EQUIPMENT	296.4	304.0	289.5
O STRATEGIC PLATFORM SUPPORT EQUIPMENT	336.7	60.2	106.6
O ASW SUPPORT EQUIPMENT	145.0	72.1	85.5
O OTHER ORDNANCE SUPPORT EQUIPMENT	28.8	27.9	29.4
O OTHER EXPENDABLE ORDNANCE	126.5	129.8	74.2

BUDGET ACTIVITY 4
NORMALIZED FOR ALL TRANSFERS
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
ORDNANCE SUPPORT EQUIPMENT	853.8	528.0	502.1
O SHIP GUN AMMUNITION	0	0	0
O SHIP GUN SYSTEM EQUIPMENT	6.5	9.1	12.2
O SHIP MISSILE SYSTEM EQUIPMENT	296.4	304.0	207.0
O STRATEGIC PLATFORM SUPPORT EQUIPMENT	336.7	60.2	106.6
O ASW SUPPORT EQUIPMENT	145.0	72.1	76.3
O OTHER ORDNANCE SUPPORT EQUIPMENT	24.8	26.5	25.7
O OTHER EXPENDABLE ORDNANCE	44.4	56.1	74.2
TRANSFER EFFECTIVE IN BA 4 (NON-ADD)			
AMMUNITION	(167.2)	(180.6)	
INSTALLATION OF MODERNIZATION EQUIPMENT			(98.5)
SPECIAL OPERATING FORCES	(30.6)	(24.5)	

TABLE 6
OTHER PROCUREMENT, NAVY
BREAKDOWN WITHIN BUDGET ACTIVITY 5, 6, 7 AND 8
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
*CIVIL ENGINEERING SUPPORT EQUIPMENT	111.6	99.7	88.5
0 TRUCKS, TRAILERS, CONSTRUCTION AND MAINTENANCE EQUIP, PASSENGER VEHICLES	53.4	65.0	58.9
0 AMPHIBIOUS/COMBAT CONSTUCTION EQUIP	39.1	12.4	7.7
0 OTHER CIVIL ENGINEERING EQUIPMENT	19.0	22.2	21.9
SUPPLY SUPPORT EQUIPMENT	109.7	143.1	478.4
PERSONNEL AND COMMAND SUPPORT EQUIPMENT	444.8	669.3	748.6
0 TRAINING EQUIPMENT	93.7	44.8	104.7
0 COMMAND SUPPORT EQUIPMENT	169.5	185.6	160.2
0 COMPUTER ACQUISITION PROGRAM	169.9	69.5	106.3
0 PRODUCTIVITY PROGRAMS	11.6	32.3	29.1
0 INDUSTRIAL DEPOT MAINTENANCE EQUIPMENT	-	337.1	348.2
*SPARES AND REPAIR PARTS	527.5	413.6	521.7
0 INITIAL/REPLENISHMENT SPARES	208.1	227.9	244.2
0 OUTFITTING SPARES	324.5	185.7	277.4

*THIS BUDGET ACTIVITY IS NOT EFFECTED BY TRANSFERS

BUDGET ACTIVITIES 6 AND 7
NORMALIZED FOR TRANSFERS
($ IN MILLIONS)

	FY 1989	FY 1990	FY 1991
SUPPLY SUPPORT EQUIPMENT	109.7	143.1	420.4
FIRST DESTINATION TRANSPORTATION			(58.0)
PERSONNEL AND COMMAND SUPPORT EQUIPMENT	444.8	332.2	390.8
0 TRAINING EQUIPMENT	93.7	44.8	104.7
0 COMMAND SUPPORT EQUIPMENT	169.5	185.6	160.2
0 COMPUTER ACQUISITION PROGRAM	169.9	69.5	96.7
0 PRODUCTIVITY PROGRAMS	11.6	32.3	29.1
TRANSFER EFFECTIVE IN BA 7 (NON-ADD)			
INSTALLATION OF MODERNIZATION EQUIPMENT			(9.6)
INDUSTRIAL DEPOT MAINTENANCE EQUIPMENT		(337.1)	(348.2)

Mr. DICKS. Admiral Lockhart.

SUMMARY STATEMENT OF ADMIRAL LOCKHART

Admiral LOCKHART. Mr. Chairman and distinguished members of the subcommittee, I am Rear Admiral (Select) Ted Lockhart, Director, Surface Combat Systems Division, Office of the Chief of Naval Operations and serve as Manager for the Weapons Procurement, Navy account.

It is my privilege to appear before you to present the munitions requirements for the U.S. Navy contained in the Weapons procurement, Navy appropriation for fiscal year 1991. With your approval, I will very briefly summarize my written statement and have that statement inserted into the official record.

The fiscal year 1991 budget request of $6,161.4 million reflects an increase over the fiscal year 1990 level. On average, however, this represents a real program decrease over the three budget years starting with 1989.

While this budget continues to reflect the favorable pricing trends and second source efforts initiated over the last few years, the increase in fiscal year 1991 over fiscal year 1990 is primarily the result of the quantity increase for programs such as the Trident II, D-5, which has resumed full rate production following its recent successful test flights, Tomahawk, Harpoon, AMRAAM, and Harm missiles, aerial and ASW targets, the MK-50 lightweight torpedo, and the recent congressionally directed transfer of over $291 million in ordnance line items from OPM.

Navy procurement policies continue to emphasize the need to buy our weapons wisely. We fully expect to get the most out of every appropriated dollar through extensive use of competition at all levels of procurement and rigorous oversight of budget execution.

The fiscal year 1991 Weapons Procurement, Navy request insures that current, cost-efficient acquisition strategies are maintained through competitive pricing and economic production rates. With the strong support of Congress, we have improved our ordnance sustainability.

We need to continue this important effort to ensure that our sailors and marines have quality munitions available in sufficient quantity when needed. We believe our budget to be a sound, carefully constructed program which will continue to improve weapons sustainability in an affordable manner.

Mr. Chairman, this concludes my summary.

[The statement of Admiral Lockhart follows:]

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF
REAR ADMIRAL (SELECT) T. C. LOCKHART
DIRECTOR, SURFACE COMBAT SYSTEMS DIVISION
OFFICE OF THE CHIEF OF NAVAL OPERATIONS

BEFORE THE
DEFENSE SUBCOMMITTEE
OF THE
HOUSE APPROPRIATIONS COMMITTEE
ON
FISCAL YEAR 1991 WEAPONS PROCUREMENT, NAVY

27 MARCH 1990

NOT FOR PUBLICATION UNTIL RELEASED BY
THE HOUSE APPROPRIATIONS COMMITTEE

REAR ADMIRAL (SELECT) THEODORE C. LOCKHART
UNITED STATES NAVY

Rear Admiral (Select) Theodore C. Lockhart, a Massachusetts native, was born in Fall River and was brought up in Haverhill. Upon graduation from Colby College, he attended Officer Candidate School, Newport, RI, and was commissioned an Ensign in February 1962.

Following a tour aboard USS JOHN W. WEEKS (DD 701), as both Communications Officer and CIC Officer, he attended Destroyer School in Newport, RI. He was next assigned as Weapons Officer in USS JOHN PAUL JONES (DD 932) and in USS CORRY (DD 817). In 1967, he reported to Fleet Training Group, Guantanamo Bay, Cuba, as an ASW Instructor/Observer. In November 1969, he assumed command of USS OBSERVER (MSO 461), homeported in Charleston, SC. Following his initial command tour, he was assigned as a Company Officer and later as Performance Officer at the Naval Academy, Annapolis, MD.

In 1975-76, Rear Admiral (Select) Lockhart attended the Naval War College, Newport, RI, after which he was assigned as Assistant Plans Officer on the Staff of Commander SIXTH Fleet. He then served as Executive Officer of USS STERETT (CG 31) from 1977-79 completing a deployment to the Western Pacific and Indian Ocean. He subsequently commanded USS PAUL F. FOSTER (DD 964), also based in San Diego. He reported to the AEGIS Shipbuilding Program in June 1982 as Combat Systems Engineer and later became Director of the Fleet Introduction Division. In 1984 he was ordered as Prospective Commanding Officer of the Guided Missile Cruiser, USS VALLEY FORGE (CG 50). He served as her Commanding Officer from commissioning in January 1986 until May 1988. The ship deployed to the Indian Ocean during this period as part of Battle Group Delta and was involved with reflagged tanker escort operations in the Gulf of Oman, Strait of Hormuz and North Arabian Sea. He assumed command of the Surface Warfare Officers School Command, Newport, Rhode Island in July 1988.

In December 1988, he was selected for promotion to Rear Admiral. Rear Admiral (Select) Lockhart reported as Director, Surface Combat Systems Division (OP-35) in the Office of Chief of Naval Operations in September 1989. He is designated a Weapons Systems Acquisition Manager. Among his awards are the Legion of Merit with gold star, Meritorious Service Medal with gold star, Navy Commendation Medal, Meritorious Unit Commendation and the Armed Forces and Navy Expeditionary Medals.

Rear Admiral (Select) Lockhart is married to the former Carolyn Anne Webster of Rockville Centre, New York. The Lockharts have two children, Jeffery and Anne.

OVERVIEW

Mr. Chairman and distinguished members of the subcommittee, it is my privilege to appear before you to present the munitions requirements for the U.S. Navy contained in the Weapons Procurement, Navy (WPN) appropriation for fiscal year 1991.

The fiscal year 1991 budget request of $6,161.4 million reflects an increase over the fiscal year 1990 level. On average, however, this represents a real program decrease over the three budget years starting with 1989. While this budget continues to reflect the favorable pricing trends and second source efforts initiated over the last few years, the increase in fiscal year 1991 over fiscal year 1990 is primarily the result of the quantity increase for programs such as the TRIDENT II (D-5), which has resumed full rate production following its recent successful test flights, TOMAHAWK, HARPOON, AMRAAM, and HARM missiles, aerial and ASW targets, the MK 50 lightweight torpedo, and the recent Congressionally directed transfer of over $291 million in ordnance line items from OPN.

Navy procurement policies continue to emphasize the need to buy our weapons wisely. We fully expect to get the most out of every appropriated dollar through extensive use of competition at all levels of procurement and rigorous oversight of budget execution. Figure 1 summarizes WPN competitive and multiyear procurement programs.

The fiscal year 1991 WPN request insures that current, cost-efficient, acquisition strategies are maintained through competitive pricing and economic production rates. With the strong support of Congress we have substantially improved our ordnance sustainability as shown in Figure 2. We need to continue this important effort to ensure the fleet has quality munitions available in sufficient quantity when needed.

WPN SUMMARY

The fiscal year 1991 Weapons Procurement, Navy Budget request consists of the six following Budget Activities,

- Activity One, Ballistic Missiles.
- Activity Two, Tactical Missiles.
- Activity Three, Torpedoes and Related Equipment.
- Activity Four, Gun Systems and Small Arms.
- Activity Five, Ammunition and Other Ordnance
- Activity Six, Spares and Repair Parts.

Figure 3 provides the proportion of the WPN appropriation by budget activity for fiscal years 1989 through 1991.

Fiscal year 1991 procurement increases, new production starts and procurement completions are listed in Figure 4.

Summarized details of the fiscal year 1991 request follow. A short narrative of each weapon grouping is followed by a chart for each line item which shows the programs and funding for fiscal years 1989 and 1990 and the fiscal year 1991 request. Readiness support and modernization items are grouped together for clarity and convenience.

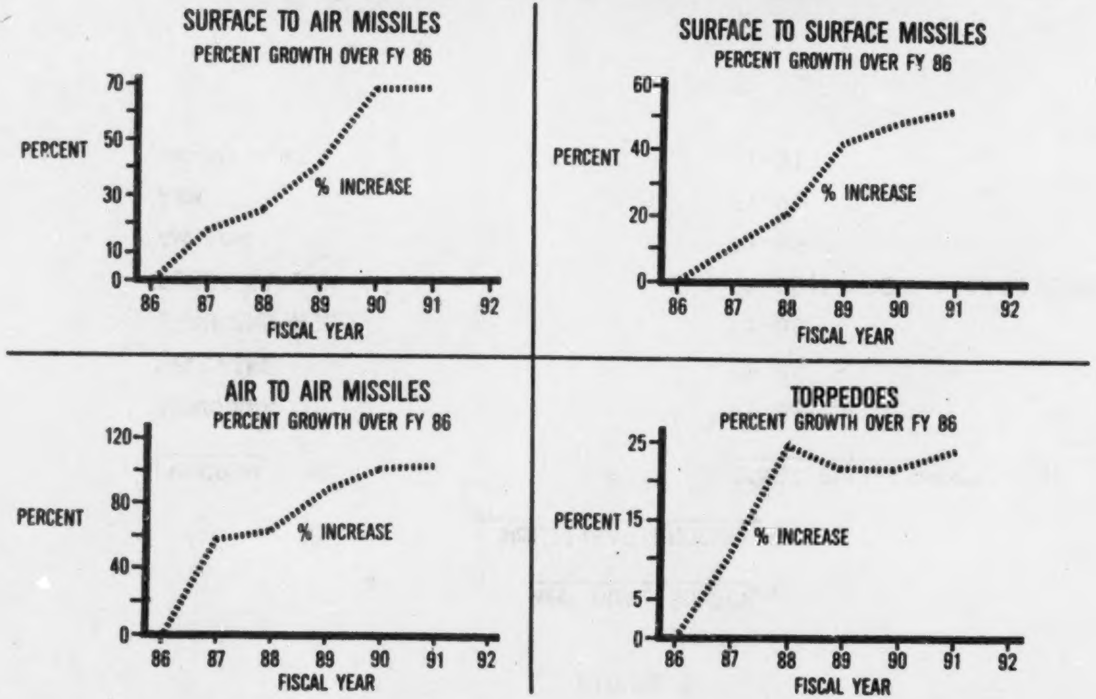
FIGURE 1

WPN DUAL SOURCE & MULTIYEAR PROCUREMENT

PROGRAM	START FULL COMPETITION
TOMAHAWK	FY-86
HELLFIRE	FY-86
STANDARD MSL	FY-88
FLEET SATCOM	FY-88(FY-90 - MULTIYEAR)
AMRAAM	FY-89
RAM	FY-90
MK-50 ALWT	FY-91

FIGURE 2

SUSTAINABILITY IMPROVED WEAPONS POSTURE (4 GRAPHS)



SURFACE TO AIR MISSILES
PERCENT GROWTH OVER FY 86

SURFACE TO SURFACE MISSILES
PERCENT GROWTH OVER FY 86

AIR TO AIR MISSILES
PERCENT GROWTH OVER FY 86

TORPEDOES
PERCENT GROWTH OVER FY 86

FIGURE 3

WPN BUDGET ACTIVITY COMPARISON
FISCAL YEARS 89, 90 & 91

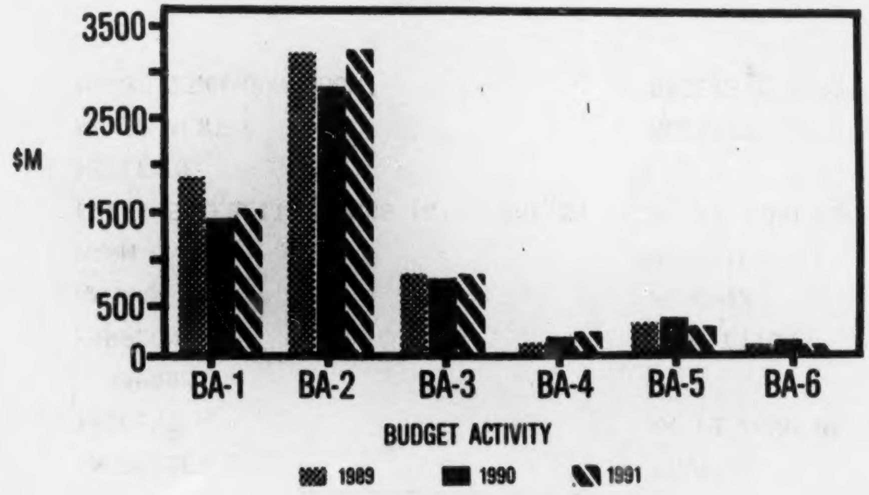


FIGURE 4

FY 91 PROCUREMENT CHANGES

INCREASES
- TRIDENT
- TOMAHAWK
- HARPOON
- AMRAAM
- HARM
- FLEET SATELLITE COMMS (QTY, not $)
- HELLFIRE
- MK-50 ALWT
- MK-38 25MM GUN MOUNT

STARTS
- MK 19 40MM MACH GUN

COMPLETIONS
- PHOENIX
- MAVERICK
- MK 75 76MM GUN MOUNT

RESTART
- BIGEYE (FY-89, FY-91)

BUDGET ACTIVITIES I AND II - MISSILE PROCUREMENT

BALLISTIC MISSILES

The submarine based strategic ballistic missile force is a cornerstone of our nation's nuclear deterrent and the most survivable element of the Strategic Triad. Fiscal year 1991 marks the fifth year of procurement of TRIDENT II (D-5) missiles. The presence of TRIDENT II (D-5) missiles will markedly enhance the credibility of the Triad through longer range, improved accuracy and increased payload (capable of attacking the full target spectrum including very hard targets). The TRIDENT II (D-5), which will replace aging POSEIDON (C-3) and TRIDENT I (C-4) missiles, will attain initial operational capability this month. It is being installed in new construction OHIO class submarines commencing with the ninth ship of the class and will be backfitted into the first eight beginning in fiscal year 1993. TRIDENT II funding requested in fiscal year 1991 will support the production of TRIDENT II (D-5) missiles as well as the associated guidance, instrumentation systems, re-entry systems (less DOE components) and production support.

TOMAHAWK

The TOMAHAWK Cruise Missile Weapons System is a family of long range missiles consisting of nuclear land attack, conventional land attack (unitary warhead and sub-munitions dispenser) and conventional anti-ship variants that can be launched from nuclear attack submarines and a variety of surface platforms. TOMAHAWK distributes our offensive capability over a large number of launch platforms, enhancing both our conventional and nuclear posture in a cost effective manner. With the development of this significant weapon system in our battleships, cruisers, destroyers and submarines, the Navy is moving from 15 offensive strike platforms (aircraft carriers) to more than 195 strike platforms. Steady progress is being achieved in the introduction of TOMAHAWK capability into the fleet. At the end of 1989, 35 surface ships and 46 submarines were capable of carrying TOMAHAWK.

TOMAHAWK missiles are dual sourced to General Dynamics, Convair Division of San Diego, California and McDonnell Douglas Missile Systems Company of St. Louis, Missouri. Dual source procurement has resulted in a high level of production capability at economical prices. TOMAHAWK competition has resulted in a steady reduction in cost per missile and has reduced total program cost projections by 37 percent since 1986. The production base also includes the potential for increased mobilization rates, if required.

The fiscal year 1991 request for TOMAHAWK procurement has been significantly increased to capture substantial savings from the most efficient production rate under the dual source competition. The TOMAHAWK modification program includes the first procurement of MK-106 rocket motors, required for submarine launches.

The final 24 missiles to be procured in fiscal year 1991 will be configured with the Block III upgrade improvements. When delivered in 1993, these missiles will significantly increase planning flexibility for TOMAHAWK employment. All subsequent conventional missiles will have Block III capability.

HARPOON

The fiscal year 1991 requested funding is for the air launched Standoff Land Attack Missile (SLAM) variant of Harpoon. The weapon employs the Harpoon propulsion and warhead sections with a Maverick Imaging Infrared (IIR) seeker, Global Positioning

System (GPS) receiver-processor and the Walleye data link. Launched from the A-6E and F/A-18 aircraft, SLAM provides a medium range standoff land attack capability outside enemy defenses.

The Harpoon modification program procures kits to extend the range, improve the seeker on older missiles, and provide for a reattack mode.

Figures 5 through 7 itemize the fiscal year 1991 budget request for ballistic and cruise missiles.

FIGURE 5

BALLISTIC MISSILES (BA 1)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
TRIDENT II	66/1865.6	42/1439.1	52/1536.3

- **DESCRIPTION:** SEA LAUNCHED BALLISTIC MISSILE FOR OHIO CLASS FLEET BALLISTIC MISSILE SUBMARINES. PROVIDES HARD TARGET KILL CAPABILITY

- **PROCURES:** TRIDENT II (D-5) MISSILES FOR BALLISTIC MISSILE SUBMARINES.

- **CONTRACT:** COST PLUS INCENTIVE FEE: LOCKHEED MISSILES AND SPACE COMPANY.

- **ACHIEVEMENTS:** STRATEGIC WEAPON SYSTEM, SUBMARINE AND FACILITY CONSTRUCTION ON SCHEDULE AND WITHIN COST. USS TENNESSEE (SSBN-734), THE FIRST TRIDENT II (D-5) CAPABLE TRIDENT, WAS DELIVERED 6 WEEKS AHEAD OF SCHEDULE AND IS OPERATING FROM KINGS BAY, GA. ALL TESTS TO DATE INDICATE WE WILL MEET OR EXCEED REQUIRED PERFORMANCE.

FIGURE 6

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
TOMAHAWK	510/675.2	400/572.0	600/808.7

- DESCRIPTION: LONG RANGE, SUBSONIC CRUISE MISSILE, CONVENTIONALLY ARMED FOR ANTI-SURFACE WARFARE AND BOTH CONVENTIONALLY AND NUCLEAR ARMED FOR LAND ATTACK.
- PROCURES: TLAM/N, TLAM C, TLAM/D, AND TASM FOR SUBMARINE AND SURFACE SHIP LAUNCH.
- CONTRACT: FY-91: COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS
  MCDONNELL DOUGLAS
- ACHIEVEMENTS:
  - -- SEPT 87 APPROVAL FOR FULL PRODUCTION FOR TASM, TLAM/N, TLAM C.
  - -- NOV 88 TLAM/D APPROVAL FOR LIMITED PRODUCTION.
  - -- BLOCK III UPGRADE WILL ENTER LIMITED PRODUCTION IN FY 1991.

FIGURE 7

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
HARPOON	119/172.9	190/212.1	215/241.1

- DESCRIPTION: STANDOFF LAND ATTACK MISSILE (SLAM) IS A SUBSONIC CRUISE MISSILE LAUNCHED FROM THE A-6E AND F/A-18. IT IS CAPABLE OF DESTROYING LAND TARGETS AND SURFACE SHIPS. PRIMARY TARGETS ARE FIXED SHORE INSTALLATIONS AND SHIPS IN PORT.
- PROCURES: FY-91: 215 SLAM MISSILES.
- CONTRACT: SOLE SOURCE/FIRM FIXED PRICE: MCDONNELL DOUGLAS.
- ACHIEVEMENTS: COMPLETED SLAM DEVELOPMENT TEST PROGRAM.

AIR-TO-AIR MISSILES

AMRAAM

The Advanced Medium Range Air-to-Air Missile (AMRAAM) is the next generation all-weather, all-environment radar guided missile developed jointly by the Air Force and Navy to replace the AIM-7 SPARROW. AMRAAM is smaller, faster and lighter than SPARROW. AMRAAM incorporates an active radar in conjunction with an inertial reference unit and microcomputer system which makes the missile less dependent upon the aircraft fire control system. This advanced capability enables the pilot to aim and fire several missiles at multiple targets. Fiscal year 1991 is the third year of Navy procurement of AMRAAM. Previous year missile procurement will support Navy Initial Operating Capability (IOC) with the F-18C/D aircraft and provide missiles required to complete follow-on Operational Test and Evaluation. Fiscal year 1990 missiles will be used to complete integration of AMRAAM into the F-14D and provide missiles for Fleet inventory. All FY 1991 missiles will be procured for fleet inventory. Figure 8 summarizes our request for AMRAAM.

FIGURE 8

OTHER MISSILES (BA-2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
AMRAAM	26/34.8	85/107.9	550/421.9

- DESCRIPTION:	NEXT GENERATION ALL-WEATHER, RADAR GUIDED ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE.
- PROCURES:	-- AIM-120A AIR-TO-AIR REPLACEMENT FOR SPARROW FOR F-15, F-16, F/A-18 AND F-14. -- JOINT USN/USAF WITH USAF AS EXECUTIVE SERVICE.
- CONTRACT:	FY-91: COMPETITIVE/FIRM FIXED PRICE: HUGHES/RAYTHEON.
- ACHIEVEMENTS:	-- LOT 3 AND LOT 4 (LONG LEAD) CONTRACTS AWARDED TO BOTH RAYTHEON AND HUGHES DECEMBER 1989. -- FIRST F/A-18C/AMRAAM LAUNCH OCTOBER 1989.

AIR TO SURFACE MISSILES

The Navy procures five air-to-ground missiles with WPN funding. Four of these weapons are employed by Navy tactical aircraft to perform their combat attack missions including anti-ship operations, ground support, defense suppression and interdiction. The fifth missile, PENGUIN, is an anti-surface missile fired by a LAMPS MK III helicopter.

HARM

HARM (High Speed Anti-Radiation Missile), the Navy and Air Force's premier weapon for defense suppression, continues to be a success story. The prime contractor, Texas Instruments, is in its eight consecutive year of on-time deliveries now at rates of 200 missiles per month. The fiscal year 1991 request includes procurement of 240 Low Cost Seeker (LCS) guidance sections from Ford Aerospace, of which the Navy will receive 120 seekers.

MAVERICK

During the past year the Navy's heavyweight warhead variant of the IIR MAVERICK missile completed operational testing and will enter the Navy's inventory this spring. IIR MAVERICK substantially enhances Navy Tactical Air's stand-off attack capability. The Navy's fiscal year 1990 budget will be the last competitive procurement, with the Air Force as executive service. The FY 1991 funding provides for production support costs of that procurement.

HELLFIRE

HELLFIRE is an air-to-ground missile procured in WPN for the U.S. Marine Corps. HELLFIRE is a semi-active, laser guided missile which will be used on USMC AH-1 helicopters as a ground support anti-armor weapon. This launch and leave missile system allows increased aircraft maneuverability during the attack phase so that a flight path can be used which minimizes exposure to enemy ground fire. This weapon is procured as a joint program with the Army as the executive service. The Navy will procure 1198 missiles during fiscal year 1991.

PENGUIN

PENGUIN is an air-to-surface infrared guided missile that is being acquired to provide an attack capability to enhance the effectiveness of the LAMPS MK III helicopter in its anti-surface warfare mission. The PENGUIN is being developed jointly by the U.S. and NORWAY under a Memorandum of Understanding between the United States Department of Defense and the Norwegian Ministry of Defense. The program schedule reflects development and operational testing from July 1988 through July 1990 with a Milestone III production decision during the third quarter of fiscal year 1990. Two successful firings from the SH-60B on 19 December 1989 and 11 January 1990 indicated successful aircraft/missile performance.

Figures 9 through 12 summarize our proposed air-to-surface missile procurements.

FIGURE 9

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
HARM	1307/300.8	1162/291.8	1320/339.4

- DESCRIPTION: AIR-TO-SURFACE MISSILE DESIGNED TO DESTROY OR SUPPRESS ENEMY ELECTRONIC EMITTERS.

- PROCURES:
    - -- ANTI-RADIATION MISSILE FOR A-7E, A-6E, EA-6B, F-4G AND F/A-18 AIRCRAFT.
    - -- JOINT USN/USAF PROCUREMENT WITH NAVY AS EXECUTIVE SERVICE.

- CONTRACT: FY-91:
    - -- TEXAS INSTRUMENTS, FFP.
    - -- FORD AEROSPACE, 240 LCS GUIDANCE SECTIONS.*

- ACHIEVEMENTS:
    - -- FULL PRODUCTION APPROVAL, NAVY LEAD FOR USN/USAF PROCUREMENTS.
    - -- LOW COST SEEKER (LCS) FSED CONTRACT AWARDED TO FORD AEROSPACE.
    - -- LOW COST SEEKER FIRST DIRECTED BUY IN FY-90.
    - -- BLOCK IV (TEXAS INSTRUMENTS VERSION TO COMPETE WITH THE LCS) SCHEDULED FOR PROCUREMENT IN FY-91.
    - -- COMPETITION BETWEEN LOW COST SEEKER AND BLOCK IV IN FY-92.

*LCS GUIDANCE QUANTITIES SPLIT 50/50 WITH USAF.

FIGURE 10

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/CHANGE
MAVERICK	731/82.7	560/66.5	0/5.8

- DESCRIPTION: AIR-TO-SURFACE MISSILE THAT PROVIDES NAVY AND MARINE CORPS TACTICAL AIRCRAFT WITH CAPABILITY TO ATTACK LAND AND SEA TARGETS FROM A MORE SURVIVABLE POSITION.
- PROCURES: IIR VARIANT OF MAVERICK MISSILE FOR USN AND USMC.
- CONTRACT: FY-90: COMPETITIVE FIRM FIXED PRICE: HUGHES AND RAYTHEON.
- ACHIEVEMENTS: OPEVAL COMPLETED DECEMBER 88.

FIGURE 11

OTHER MISSILES (BA-2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
HELLFIRE	1000/34.8	1098/50.3	1198/42.1

- DESCRIPTION: AIR-TO-GROUND LASER GUIDED MISSILE FOR GROUND SUPPORT.

- PROCURES: AGM-114B WITH ARMY AS EXECUTIVE SERVICE: FOR USMC AH-1 HELICOPTERS.

- CONTRACT: COMPETITIVE/FIRM FIXED PRICE: ROCKWELL, MARTIN MARIETTA.

- ACHIEVEMENTS: APPROVED FOR FULL PRODUCTION MARCH 1986.

FIGURE 12

OTHER MISSILES (BA 2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
PENGUIN	0/3.5	64/66.3	65/44.2

- DESCRIPTION: HELICOPTER LAUNCHED ANTI-SHIP MISSILE.
- PROCURES: MK-2 MOD-7 PENGUIN ANTI-SHIP MISSILE FOR LAMPS MK-III, FIRE AND FORGET, PASSIVE IR-SEEKER.
- CONTRACT: SOLE SOURCE/FIXED PRICE: VIA NORWEGIAN NAVAL MATERIAL COMMAND.
- ACHIEVEMENTS: FULL SCALE ENGINEERING DEVELOPMENT AND AIRCRAFT INTEGRATION TESTING IN PROGRESS.
- FY 1989 and FY1990 includes advance procurement: FY-89 $3.5M, FY-90 $3.7M
- FY 1990 includes a $23 million prior approval reprogramming to cover the latest contractor cost estimates.

SURFACE-TO-AIR MISSILES

STANDARD MISSILE

The STANDARD family of area defense missiles provides the Navy's first line surface-to-air defense against enemy aircraft and cruise missiles. It has been produced since 1968, constantly being improved to meet the advancing threat. There are two basic types of STANDARD missiles: Medium Range (MR) used on AEGIS and TARTAR combatants, and Extended Range (ER) used on TERRIER combatants. The SM-1 Block VI and the SM-2 Block I are out of production though still in use in the fleet and available from inventory.

STANDARD Missile is now being produced in four versions. The final orders for SM-2 Block II MR and ER were placed in fiscal year 1988; SM-2 Block III (AEGIS variant) entered production in fiscal year 1988, while the Block III MR (TARTAR) and ER (TERRIER) variants entered production in fiscal year 1989.

SM-2 Block III, the first production missile resulting from the STANDARD Missile Improvement Program initiated in 1984, incorporates low altitude and other fuze enhancements (the Mk-45 Mod 9 fuze) and a new warhead. An expansion of the low altitude program incorporates an advanced dual mode guidance system (SM-2 Block IIIB) as part of the Missile Homing Improvement Program

(MHIP) and is initially funded in the standard missile modification program.

The Block III series enhancements will also be produced in kit form to retrofit older missiles, thereby creating new missiles from existing inventory at minimal cost. Future challenges will be met with the introduction of the SM-2 Block IV (AEGIS ER) missile, which transitions to production this year. Incorporating a high altitude capability and an improved booster, the Block IV will have a major impact on upgrading the engagement capabilities of the existing AEGIS Fleet.

Competitive acquisition of all STANDARD Missiles components was implemented in fiscal year 1988 with the sole exception of the ER version's MK 30 sustainer rocket motor, an older rocket motor whose manufacturing technology cannot be economically duplicated and whose final procurement year will be 1990. The actual and projected savings achieved by competitive acquisition through fiscal year 1994 have been dramatic, totaling over $420 million.

SM-2 Block II, IIIA, and IIIB MR missiles are the primary air defense weapon for the projected 27 TICONDEROGA class AEGIS cruisers and 29 ARLEIGH BURKE class AEGIS destroyers; as well as the 6 ships in the CALIFORNIA and VIRGINIA classes of nuclear cruisers, and 4 KIDD class destroyers that will receive the TARTAR New Treat Upgrade (NTU) conversion. SM-2 Block IV, specially developed for AEGIS and Vertical Launch System (VLS), will add a greater altitude engagement range and cross-range capability.

SM-2 Block II, III,and IIIA ER missiles are the primary air defense weapon for the 18 LEAHY and BELKNAP class guided missile cruisers, the nuclear cruisers LONG BEACH, and one destroyer, the MAHAN. These cruisers are planned to receive the TERRIER NTU conversion, and the MAHAN will be configured with the NTU Engineering Development Model.

RAM

The Rolling Airframe Missile (RAM) is a joint program with the Federal Republic of Germany (FRG). RAM is a high firepower self-defense system against anti-ship capable missiles. It employs a dual mode passive radar frequency/infrared guidance system. The system is programmed for installation aboard amphibious ships and auxiliaries and will complement the existing PHALANX point defense systems. RAM utilizes its own 21-cell reloadable launcher. The Navy plans dual source procurement of RAM on a competitive basis with Germany. The RAM Memorandum of Understanding (MOU) signed in August of 1987 by the U.S. and FRG fully complies with the provisions of the NATO Cooperative Project legislation.

RAM recently completed technical evaluation with an impressive

11 of 11 hits. The final phase of operational test and evaluation occurs in early 1990. The Secretary of the Navy approved limited production of RAM in April 1987 and Germany approved production in September 1987. RAM was certified as a NATO Cooperative Project in May 1988.

Figures 13 and 14 summarize the STANDARD Missile and RAM procurement requests.

FIGURE 13

OTHER MISSILES (BA 2)

$M

WEAPONS	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
STANDARD MISSILE	1310/594.6	940/390.2	900/607.8

- DESCRIPTION: SURFACE-TO-AIR, ENGAGE AND INTERCEPT AIRCRAFT, ANTI-SHIP MISSILES AND SURFACE SHIPS.

- PROCURES:
  FY-90: 850 AEGIS SM-2 BLK III/IIIA/IIIB*
  90 TERRIER SM-2 BLK III
  FY-91: 600 AEGIS SM-2 BLK IIIA
  300 AEGIS ER SM-2 BLK IV

- CONTRACT:
  FY-90: COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, RAYTHEON.
  FY-91: SM-2 BLK IIIA - COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, RAYTHEON.
  SM-2 BLK IV COMPETITIVE/FIXED PRICE INCENTIVE OPTION ON RDT&E DEVELOPMENT CONTRACT: RAYTHEON, GENERAL DYNAMICS.

* WILL COMPETE AS AN EIGHT MONTH PROCUREMENT AND STRETCH FY-89 DELIVERIES OVER A 16 MONTH PERIOD.

FIGURE 14

OTHER MISSILES (BA-2)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
RAM	260/51.8	580/90.2	405/70.4

- DESCRIPTION: SURFACE-TO-AIR SHORT RANGE HIGH FIREPOWER, LOW COST, LIGHTWEIGHT SELF-DEFENSE SYSTEM TO ENGAGE ANTI-SHIP MISSILES.

- PROCURES: ROLLING AIRFRAME MISSILZ FOR RAM EQUIPPED SURFACE SHIPS.

- CONTRACT: FY-90/91: COMPETITIVE FIXED-PRICE DUAL SOURCING BETWEEN RAMSYS(FRG) AND GENERAL DYNAMICS.

- ACHIFVEMENTS: IN LIMITED RATE PRODUCTION; DT/OT TESTS SUCCESSFULLY COMPLETED FEBRUARY 1987.
US/FRG PRODUCTION MOU SIGNED 3 AUGUST 87.
MILESTONE IIIA (APPROVAL FOR LIMITED PRODUCTION) FOR FY-88/89; PRODUCTION CONTRACTS LET OCT 89.
TECHEVAL COMPLETED DECEMBER 1989 (11 FOR 11).

SPACE SYSTEM

FLEET SATELLITE COMMUNICATIONS (UHF FOLLOW-ON)

The fiscal year 1991 WPN appropriation request provides procurement and support funds for one space system which improves our warfighting capabilities: the UHF Follow-On Satellite, which is the heart of the Navy's Fleet Satellite Communications (FLTSATCOM) program.

The existing constellation of Ultra High Frequency (UHF) communications satellites (FLTSAT and LEASAT) employs eight satellites in four locations to provide key command and control links for mobile forces of the Department of Defense (DOD) and other Government agencies. The last FLTSAT satellite was launched in September 1989 and the last LEASAT satellite was launched in January 1990. As the existing constellation reaches the end of its expected operational lifetime, beginning in the early 1990's, UHF Follow-On satellites will be deployed to maintain DOD UHF communications capability. A limited Extremely High Frequency (EHF) antijam capability will be installed on the fourth through tenth follow-on satellites. The first UHF Follow-On satellite is scheduled to become operational in 1992.

The basic requirement is for nine satellites in orbit (eight in four footprints, plus one in-orbit spare). The fixed price prime contract with Hughes Aircraft Company was awarded in July 1988 for the first satellite. The multiyear option was executed in February 1989 and includes eight spacecraft (satellites two through nine) plus an option for one spare.

The fiscal year 1991 request provides for procurement of the fourth through sixth UHF Follow-On satellites, production support, and non-recurring and recurring costs associated with the first two EHF packages.

Figure 15 summarizes the space system procurement request.

FIGURE 15

OTHER MISSILES (BA-2)

$M

SATELLITE	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
FLEET SATELLITE COMMUNICATIONS (UHF FOLLOW-ON)	0/173.6	2/312.7*	3/249.6

- DESCRIPTION: UHF FOLLOW-ON GENERATION TO REPLACE END OF LIFE FLTSAT/LEASAT COMMUNICATIONS CONSTELLATION.

- PROCURES:
  - FY-90 - UHF FOLLOW-ON SATELLITES NUMBER TWO AND NUMBER THREE; NON-RECURRING EFFORTS FOR AN EXTREMELY HIGH FREQUENCY (EHF) CAPABILITY; ADVANCE ECONOMIC ORDER QUANTITY; LIFE OF TYPE BUY FOR EHF; LAUNCH SERVICES.
  - FY-91 - UHF FOLLOW-ON SATELLITES NUMBER FOUR, FIVE AND SIX; NONRECURRING AND RECURRING EFFORTS FOR EHF; LAUNCH SERVICES.

- CONTRACT: COMPETITIVE, FIVE YEAR, FIXED PRICE, WITH MULTIYEAR OPTION AWARDED TO HUGHES AIRCRAFT COMPANY, JULY 1988. MULTIYEAR OPTION EXERCISED FEBRUARY 1989.

- ACHIEVEMENTS:
  - LAUNCHED FLTSAT F-8, SEPTEMBER 1989.
  - LAUNCHED LEASAT F-5, JANUARY 1990.

* INCLUDES ADVANCE PROCUREMENT: $150.9M

READINESS AND MODERNIZATION

Realistic peacetime training is the cornerstone of successful combat readiness. In Budget Activities One and Two, readiness issues are addressed through funding aerial targets for fleet training and support for in-service weapons. Modernization of in-service weapons is funded through the various WPN modification lines. Also described in this section is the funding request for Vertical Launch System (VLS) canisters.

TRIDENT I SUPPORT

Although TRIDENT I missiles are no longer being procured, funding is required to support missile readiness flight testing necessary throughout the operational lives of the weapons.

AERIAL TARGETS

Aerial targets provide the representative threats needed to properly evaluate weapons systems and to provide for an effective Fleet training program. The fiscal year 1991 request includes funding for both towed and launchable targets. The BQM-74C and BQM-34S are recoverable subsonic targets, while the AQM-37C is a non-recoverable, supersonic target, which replicates high altitude, high speed threats. Also funded are the material costs for the conversion of F-4 aircraft into QF-4 full-scale aerial targets, conversion of TALOS missiles into MQM-8X supersonic full-scale targets, target auxiliary equipment required for target control and augmentation. Figure 16 displays the fiscal year 1991 procurement request for aerial targets.

WEAPONS/MISSILE INDUSTRIAL FACILITIES

Capital improvements to eleven Weapons Industrial Facilities owned by the government and operated by contractors are funded in the WPN Weapons Industrial Facilities and Missile Industrial Facilities lines. These improvements include environmental and safety related repairs.

Figure 17 summarizes the fiscal year 1991 request for readiness procurement associated with missile testing and rework for TRIDENT I and Weapons and Missile Industrial Facilities.

MISSILE MODIFICATIONS

Missile modifications include a number of essential performance, reliability, maintainability and safety alterations which are based upon testing results and fleet feedback. The modifications requested cover essential expenses for ensuring that our missile inventory remains reliable as well as capable of defeating the evolving threat. Fiscal year 1991 STANDARD Missile modifications are low altitude improvements. The TOMAHAWK modifications include the Mission control module Block III upgrade and the Reference Measurement Unit Computer (RMUC) reliability improvements and the Mk-111 Improved Booster for the submarine launched TOMAHAWK. HARPOON modifications include Improved Harpoon modification, and Non-Special Discriminate Seekers (NON-SPDI), Mid-Course Guidance Units and memory pages. The Sparrow modification request will continue to provide a low altitude fuze retrofit, improved fusing in chaff environments, and the Missile Homing Improvement Program (MHIP) which will greatly enhance the Sea Sparrow's ability to counter advance threats by exploiting several of the target's characteristics to aid in homing. The fiscal year 1991 PHOENIX modification request provides for the incorporation of changes to missile components/sections to upgrade the AIM-54A/C inventory.

The AIM-9R upgraded SIDEWINDER is designed to be carried by the F-14, F-18 and other AIM-9M capable aircraft. It will provide U.S. Forces with a superior air-to-air missile by increasing counter-counter measures capabilities and head-on acquisition range. In addition, the AIM-9R will provide increased background discrimination against low flying targets. Full Scale Development (FSD) contract was awarded to Ford Aerospace in March 1987. Captive carry flight testing and buildup of engineering test vehicles are in process. The $7.1 million fiscal year 1991 SIDEWINDER Mods request is for the nonrecurring costs of second source start-up. Figure 18 displays the missile modifications program for fiscal year 1991.

VERTICAL LAUNCHING SYSTEM CANISTERS

Vertical Launching System (VLS) canisters for TOMAHAWK, STANDARD missiles and Vertical Launch ASROC are funded in the WPN Other Missile Support line. One VLS canister is required for each VLS missile variant procured. Canisters are used as a storage/shipping container for missiles ashore and as the magazine and firing tube aboard ship.

Figure 19 summarizes the Other Missile Support request for fiscal year 1991.

FIGURE 16

OTHER MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
AERIAL TARGETS	109.2	124.4	142.4

- DESCRIPTION: POWERED REMOTE CONTROLLED TARGETS, TOWED TARGETS, AND TARGET AUGMENTATION SYSTEMS USED FOR AIRCRAFT AND SHIP TRAINING AND OPERATIONAL TESTS.

- PROCURES: FY-90/91: SUBSONIC BQM-34S, HIGH ALTITUDE SUBSONIC AQM-37C, SUBSONIC BQM-74E, FULL SCALE OF QF-4S, SUPERSONIC MQM-8X/MQM-8G(ER)* SEA SKIMMER AND TOW TARGETS.

- CONTRACT: VARIOUS, MOST ARE COMPETITIVE FIXED PRICE: BEECH, BRUNSWICK, TELEDYNE-RYAN, NORTHROP, ALLIED BENDIX, SOUTHWEST AEROSPACE.

- ACHIEVEMENTS: SUCCESSFULLY AWARDED SECOND SOURCE CONTRACT TO BRUNSWICK CORPORATION FOR THE AQM-37C WITH FIRST COMPETITION IN FY-91

* PREVIOUSLY PROCURED WITH RDT&E FUNDS AND ONLY AVAILABLE FOR T&E. PROCUREMENT WITH WPN WILL MAKE THEM AVAILABLE FOR FLEET TRAINING AS WELL AS T&E.

FIGURE 17

BALLISTIC MISSILES (BA-1)/TACTICAL MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
TRIDENT I	1.9	1.2	1.3
MISSILE INDUSTRIAL FACILITIES	2.6	2.3	2.4
WEAPONS INDUSTRIAL FACILITIES	13.7	16.8	25.0

- DESCRIPTION: MISSILE TESTING AND REWORK FOR TRIDENT I. CAPITAL TYPE REHABILITATION PROJECTS (ENVIRONMENTAL, SAFETY, MAJOR REPAIRS AND FACILITIES RESTORATION) FOR ELEVEN GOVERNMENT-OWNED, CONTRACTOR-OPERATED MISSILE INDUSTRIAL FACILITIES.

FIGURE 18

OTHER MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
TOMAHAWK MODS	7.2	3.3	26.7
SPARROW MISSILE MODS	44.1	28.9	30.0
SIDEWINDER MODS	2.4	.0	7.1
PHOENIX MODS	.2	.0	3.8
HARPOON MODS	9.5	12.8	18.3
STANDARD MISSILE MODS	27.5	11.7	15.4

- DESCRIPTION: COMPONENTS TO UPGRADE PERFORMANCE OF MISSILE AND INCORPORATES SAFETY, MAINTAINABILITY, AND RELIABILITY IMPROVEMENTS.

- PROCURES:
  - TOMAHAWK BLOCK III UPGRADE AND MK-111 IMPROVED BOOSTER.
  - SPARROW AIM/RIM-7P BLOCK I AND II AND MISSILE HOMING IMPROVEMENT KITS (FY-91).
  - SIDEWINDER AIM-9R GUIDANCE CONTROL AND AIRFRAME RETROFIT.
  - PHOENIX UPGRADE AIM 54-C INVENTORY.
  - HARPOON RELIABILITY, MAINTAINABILITY, PRODUCIBILITY, AND IMPROVED HARPOON.
  - STANDARD MISSILE LOW ALTITUDE IMPROVEMENTS (G,C&A AND ORDNANCE) AND MHIP (FY-91).
  - STANDARD MISSILE SM-1 MK-56 DTRM MODIFICATIONS.

FIGURE 19

OTHER MISSILES (BA-2)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
OTHER MISSILE SUPPORT: VLS CANISTERS	15.3	14.6	29.1

- DESCRIPTION:	VLS CANISTERS FOR STANDARD AND TOMAHAWK MISSILES AND VERTICAL LAUNCH ASROC (VLA).
- PROCURES:	VLS CANISTERS FOR STANDARD AND TOMAHAWK MISSILES FOR DD-963 CLASS VLS CONFIGURED AND CG-47 CLASS SHIPS. ALSO PROCURES SMALL AMOUNT OF VLS UNIQUE EQUIPMENT FOR WEAPONS STATIONS AND INTEGRATED LOGISTICS SUPPORT (ILS) FOR CANISTERS PROCURED WITH WPN FUNDS.

BUDGET ACTIVITY III TORPEDOES AND RELATED EQUIPMENT

TORPEDOES

MK-48 ADCAP TORPEDO

The Navy is proceeding with fleet introduction of the submarine launched MK-48 Advanced Capability (ADCAP) heavyweight torpedo as the front line replacement for the MK-48 Mod 4 torpedo. The MK-48 (ADCAP) provides improved performance in adverse environmental conditions and the software driven guidance and control system is adaptable against the evolving threat. An advanced propulsion system will make a substantial improvement in torpedo quieting. The torpedo will meet the challenge of the deep diving, high speed enemy submarine through the 1990's and beyond. It is essential to maintaining the tactical advantage of our attack submarine force. The Secretary of the Navy authorized full production of the ADCAP torpedo in January 1989. Full competition is in place between Hughes and Westinghouse. Figure 20 summarizes the fiscal year 1991 request for the MK-48 ADCAP Torpedo.

As you will note FY 1991 funding supports procurement of only 240 torpedoes. The Navy has limited ADCAP procurement to an economic production rate for a single source until major improvements can be incorporated, such as the Closed Cycle Advanced Propulsion System or CCAPS.

MK-50 TORPEDO

The MK-50 is an advanced lightweight torpedo that replaces the MK 46 and will combat the present and projected submarine threat well into the next century. The MK-50 will be interoperable with all U.S. Navy surface and air Anti-Submarine Warfare (ASW) platforms now employing the MK-46.

TECHEVAL began in August 1989 and completion is anticipated in mid 1990. The weapon is meeting performance thresholds.

LRIP II contracts have been negotiated with both contractors for a total of 200 torpedoes (100 to each contractor). The Honeywell contract was awarded in November 1989 and the Westinghouse contract is planned for award early in calendar year 1990.

The fiscal year 1991 procurement plan is for a competitive buy of 265 torpedoes, with a split between both contractors, the winner getting the larger share. The Navy plans to award firm fixed price (FFP) contracts. Figure 21 summarizes the fiscal year 1991 request for MK-50 Torpedoes.

MK-46 TORPEDO MODIFICATIONS

The MK-46 torpedo will continue to serve the Navy through the 1990's while the MK-50 production is ramped up to replace the MK-46 torpedo. In an effort to improve MK-46 operational capabilities against the projected threat, a modifications program was initiated in fiscal year 1989. Modifications to the MK-46 will enhance the torpedo's performance in shallow water and against targets operating in environmentally challenging scenarios. The fiscal year 1991 MK-46 request supports procurement of firmware required to continue this important program.

QUICKSTRIKE MINE

Quickstrike is a family of shallow water bottom mines which are deployed from aircraft. Quickstrike mines consist of modular components which can be assembled into various configurations using general purpose bombs or a unique mine case. Quickstrike provides a flexible quick response weapon system capable of satisfying various shallow water mining requirements. This weapon transferred from the OPN to the WPN account this year.

Figures 22 and 23 display the requested funds for torpedo modifications and Quickstrike programs.

FIGURE 20

TORPEDOES/RELATED EQ (BA 3)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
MK 48 ADCAP	320/481.1	260/437.8	240/350.3

- DESCRIPTION: SUBMARINE LAUNCHED HEAVYWEIGHT TORPEDO USED AGAINST SURFACE AND SUBSURFACE TARGETS.

- PROCURES: IMPROVED HEAVYWEIGHT TORPEDO CAPABILITY AGAINST ADVANCED THREAT SUBMARINES, IN ADVERSE ENVIRONMENTS.

- CONTRACT: FY-90: FIRM FIXED PRICE: HUGHES AIRCRAFT/WESTINGHOUSE.
  FY-91: COMPETITIVE SINGLE SOURCE FIRM FIXED PRICE.

- ACHIEVEMENTS: APPROVAL FOR FULL PRODUCTION GRANTED 23 JANUARY 1989.

FIGURE 21

TORPEDOES/RELATED EQ (BA 3)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
MK 50 ALWT	140/197.4*	200/270.8	265/328.3

- DESCRIPTION:	ADVANCED LIGHTWEIGHT TORPEDO THAT WILL COMBAT PRESENT AND PROJECTED SUBMARINE THREAT WELL INTO THE NEXT CENTURY.
- PROCURES:	ADVANCED TORPEDO FOR SURFACE AND AIR LAUNCH.
- CONTRACT:	FY-90: FIXED PRICE INCENTIVE. LOW RATE INITIAL PRODUCTION (LRIP II). FY-91: COMPETITIVE FIXED PRICE. FIRST YEAR OF COMPETITION BETWEEN HONEYWELL AND WESTINGHOUSE.
- ACHIEVEMENTS:	TECHEVAL COMMENCED 17 AUGUST 1989 AND IS SCHEDULED TO COMPLETE IN MID 1990. LRIP II CONTRACTS AWARDED (HONEYWELL IN NOVEMBER 1989 AND WESTINGHOUSE PLANNED FOR EARLY CY 1990).

* INCLUDES ADVANCE PROCUREMENT: FY-89 $36.5M

FIGURE 22

TORPEDOES/RELATED EQUIPMENT (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
MK-46 MODS	0	8.7	11.7

- DESCRIPTION: MODIFIES THE MK-46 TORPEDO TO IMPROVE PERFORMANCE AGAINST SUBMARINES OPERATING IN SHALLOW WATER AND AGAINST SUBMARINES OPERATING AT SHALLOW DEPTHS AND SLOW SPEEDS. INCLUDES AN ANTI-TAMPER MODIFICATION TO PREVENT REVERSE ENGINEERING OF THE TORPEDO'S COUNTER-COUNTERMEASURE LOGIC CIRCUITRY.

- PROCURES: FIRMWARE AND ASSEMBLY KITS.

- CONTRACT: SOLE SOURCE FIRM FIXED PRICE: HONEYWELL FOR FIRMWARE AND ASSEMBLY KITS. MINOR PROCUREMENT OF ASSEMBLY HARDWARE BY NUWES KEYPORT. INSTALLATION BY NUWES KEYPORT (TORPEDO MAINTENANCE DEPOT).

FIGURE 23

TORPEDOES/RELATED EQUIPMENT (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
QUICKSTRIKE	22.4*	17.7*	16.1

- DESCRIPTION: QUICKSTRIKE IS A FAMILY OF SHALLOW WATER BOTTOM MINES WHICH ARE DEPLOYED FROM AIRCRAFT. QUICKSTRIKE MINES CONSIST OF MODULAR COMPONENTS WHICH CAN BE ASSEMBLED INTO VARIOUS CONFIGURATIONS USING GENERAL PURPOSE BOMBS OR A UNIQUE MINE CASE. QUICKSTRIKE PROVIDES A FLEXIBLE QUICK RESPONSE WEAPON SYSTEM CAPABLE OF SATISFYING VARIOUS SHALLOW WATER MINING REQUIREMENTS.

- CONTRACT: FY-91:

COMPONENT	QTY	CONTRACT	TYPE
TDD MK 58	700	COMPETITIVE-OPTION	FFP
S&A MK 75	294	COMPETITIVE-NEW	FFP
TDD MK 57	1,500	COMPETITIVE-OPTION	FFP

- ACHIEVEMENTS:
  - ACHIEVED IOC FOR MINE MK 65 MOD 1.
  - 241 TDD MK 58S DELIVERED BY SPARTON.
  - 928 MK 65S DELIVERED BY FEL.
  - 518 MK 65S EXPLOSIVE LOADED AT NWS, YORKTOWN.
  - 87 TEST SET MK 597S DELIVERED.

* FY-89 AND FY-90 FUNDING IS CONTAINED IN THE OPN APPROPRIATION.

ASW READINESS AND IMPROVEMENT

ASW TARGETS

Anti-Submarine Warfare (ASW) targets provide a training exercise capability on and off range for torpedoes, sonars, sonobuoys, and Magnetic Anomaly Detection (MAD) equipped aircraft. The Mobile Target MK 30 MOD 1 is a direct substitute for submarines in providing air, surface, and submarine ASW units a target for realistic exercises on three-dimensional underwater ranges.

Fiscal year 1991 is the second year of procurement for the MK 39 Expendable Mobile ASW Training Target (EMATT). It is a small, self-propelled underwater vehicle that may be air launched from both fixed wing and rotary ASW aircraft or hand-launched over the side of ASW surface ships. It provides basic, open ocean sonar training operation consisting of a dynamic run trajectory that is actively controlled in depth and course with pre-programmable run maneuvers. The MK 39 EMATT is also capable of generating a magnetic field (anomaly) detectable by all current Navy Magnetic Anomaly Detectors (MAD).

ASROC AND TORPEDO SUPPORT EQUIPMENT

Most anti-submarine weapons used in training, test, and quality assurance are recovered, as contrasted to missiles, which are expended in the course of firing exercises. The Torpedo Support Equipment funding line procures components and supplies necessary to rework MK-46, MK-50, MK-48 Mod 4 and ADCAP torpedoes after training and test firings. The amount of funding required is directly related to these requirements.

ASW RANGE SUPPORT

ASW Range Support funding provides training range devices and weapon proofing equipment used to support operations at the Navy's eight underwater ranges. A majority of the range support funding supports training exercises, with the balance dedicated to acceptance proofing of new and reworked weapons and test projects related to service weapons. Test, qualification and fleet torpedo firings average 3700 per year.

Figures 24 through 26 are the Navy's request for ASW readiness support funding.

FIGURE 24

TORPEDO/RELATED EQ (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
ASW TARGETS	0	13.0	26.4

- DESCRIPTION: ASW TRAINING TARGETS FOR ALL TORPEDOES, SONARS, SONOBUOYS, AND MAGNETIC ANOMALY DETECTION (MAD) EQUIPPED AIRCRAFT.

- PROCURES: FY 90: 1,105 MK 39 EXPENDABLE MOBILE ASW TRAINING TARGETS (EMATT).
  FY 91: 3,000 MK 39 EMATT.

- CONTRACT: EMATT: FY 90 - SOLE SOURCE, FIRM FIXED PRICE: SIPPICAN.
  FY 91 - COMPETITIVE, FIRM FIXED PRICE.

FIGURE 25

TORPEDO/RELATED EQ (BA 3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
TORPEDO SUPPORT EQUIPMENT	25.8	39.0	55.3
ASROC	0	9.3	20.2

- DESCRIPTION:
  - TORPEDO SUPPORT EQUIPMENT.
  - SWIMMER WEAPON SYSTEM FOR SPECIAL OPERATIONS FORCES.
  - ASROC MISSILE REPLACEMENT COMPONENTS.
- PROCURES: EXPENDABLE COMPONENTS OF EXERCISE TORPEDOES SUCH AS BATTERIES, CABLES, IGNITERS, EXERCISE HEADS, FUEL TANKS, AND EXHAUST VALVES ASROC MISSILE COMPONENTS CONSUMED DURING FIRINGS.
- CONTRACT: TORPEDO SUPPORT EQUIPMENT COMPETITIVE: VARIOUS CONTRACTORS.
  ASROC FIRM FIXED PRICE: VARIOUS CONTRACTORS.

FIGURE 26

TORPEDO/RELATED EQ (BA-3)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
ASW RANGE SUPPORT	22.5	24.2	24.4

- DESCRIPTION: TRAINING RANGE, WEAPON PROOFING RANGE EQUIPMENT AND FLEET SUPPORT EQUIPMENT FOR USE ON NAVY'S UNDERWATER RANGES. INSTRUMENTS AND SUPPORTS FLEET EXERCISES AND ASW WEAPON PRODUCTION ACCEPTANCE TESTING.

- PROCURES: RECOVERY EQUIPMENT PINGER COMPONENTS, EXERCISE TARGETS AND TARGET COMPONENTS.

- CONTRACT: COMPETITIVE/FIRM FIXED PRICE: VARIOUS.

BUDGET ACTIVITY IV - OTHER WEAPONS

GUN SYSTEMS AND SMALL ARMS

PHALANX CIWS

PHALANX CIWS is funded and modernized through the WPN account. The Navy plans to install 776 systems, of which 436 will be procured with WPN funds, the remainder being SCN in support of new construction. The CIWS testing program, one of the most rigorous ever conducted, has consistently demonstrated this system as a potent, reliable terminal defense against anti-ship cruise missiles. All PHALANX systems procured with fiscal years 1990 and 1991 funds will be Block 1 Baseline 2 configuration, which includes reliability and maintainability improvements. The CIWS modification program procures Block 1 and upgrade kits which enhance the reliability and maintainability of existing systems and provide an improved capability against high diving missiles. Beginning in fiscal year 1988, PHALANX Block 1 systems and ORDALTS were procured competitively between General Dynamics and General Electric.

As a result of the increased air threat throughout the Middle East, the Navy has ensured that every ship scheduled to receive PHALANX CIWS is so equipped prior to sailing for that region. In consideration of this requirement, the PHALANX production program was realigned to provide some earlier deliveries to the Fleet. Additionally, systems earmarked for ships which have been identified for early retirement have been diverted to other ships which have not yet received installation. The requested increase in procurement quantities in fiscal years 1990 and 1991 over fiscal year 1989 reflects an acceleration of the installation of Block 1 CIWS mounts in ships that do not have CIWS.

MK 19 40MM MACHINE GUN & 25MM GUN MOUNT

Short range, high volume firepower is important to a variety of Navy ships, patrol craft, and shore units. The MK-38 25MM gun and MK-19 MOD 3 40MM machine gun satisfy this requirement. The MK-19 MOD 3 fires 40MM grenades to a maximum range of 2400 yards. It is an effective close range defensive weapon providing area coverage. The 25MM gun system will replace obsolete 20MM MK-16 guns as the main battery for 65 foot patrol boats and as a general purpose short range armament for current and new construction amphibious and auxiliary ships. We have installed the MK-38 25MM gun on all ships deploying to the Persian Gulf to provide a simple, rapid fire close-in gun capability.

SMALL ARMS

The funding request for Small Arms continues the Navy's emphasis on procurement of various weapons essential to shore base security (anti-terrorist defense) and ship protection.

GUN MODIFICATIONS

The Gun Modification program funding summarized in Figure 31 provides: Ordnance Alterations (ORDALTS), hardware to correct safety and shock deficiencies and improve operability, reliability, maintainability, and system availability of all Navy gun systems from the 16 inch to 20MM. Alterations are developed in direct response to testing and fleet needs.

Figures 27 through 31 summarize the fiscal year 1991 budget request for gun systems, small arms and gun modifications.

FIGURE 27

OTHER WEAPONS (BA 4)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
CIWS PHALANX	2/18.9	18/59.9	17/62.0
CIWS MODS	54.3	56.5	81.3

- DESCRIPTION: SURFACE SHIP QUICK REACTION, AUTONOMOUS 20MM GUN SYSTEM FOR TERMINAL DEFENSE AGAINST CRUISE MISSILES AND AIRCRAFT.
- PROCURES: FY-90: 18 NEW INSTALLATION SYSTEMS AND BACKFIT BLOCK 1 CAPABILITY.
  FY-91: 17 NEW INSTALLATION SYSTEMS AND BACKFIT BLOCK 1 CAPABILITY.
- CONTRACT: COMPETITIVE/FIRM FIXED PRICE: GENERAL DYNAMICS, GENERAL ELECTRIC.
- ACHIEVEMENTS: BLOCK 1 OPERATIONAL TEST EVALUATION COMPLETED MAY 88.
  BLOCK 1 FOLLOW-ON TEST AND EVALUATION JAN-APR 90.

FIGURE 28

OTHER WEAPONS (BA-4)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
25 MM GUN MOUNT	57/9.3	22/4.9	55/9.6

- DESCRIPTION: 25MM STAND ALONE HIGH FIREPOWER MK-38 MACHINE GUN FOR SHIPS AND PATROL BOATS. RAPID INSTALLATION.

- PROCURES: MK 38 GUN AND MK 88 GUN MOUNT.

- CONTRACT: ARMY SOLE SOURCE/MULTI-YEAR PROCUREMENT: MCDONNELL DOUGLAS GUN. MK 88 MOUNT ASSEMBLED BY NSWC/CRANE (FIXED PRICE).

FIGURE 29

OTHER WEAPONS (BA 4)

$M

WEAPON	FY-89 QTY/COST*	FY-90 QTY/COST*	FY-91 QTY/COST
MK 19 40MM MACHINE GUN	0	0	25/0.5

- DESCRIPTION: 40MM GRENADE STAND ALONE MK-19 MACHINE GUN FOR SOF, SEABEES, AND SMALL BOAT UNITS (SBU'S). TEMPORARILY BEING EMPLOYED IN SURFACE COMBATANTS TO PROVIDE ADDITIONAL CLOSE-IN SELF DEFENSE AGAINST SMALL BOAT THREAT IN PERSIAN GULF.
- PROCURES: MK-19/3 MACHINE GUN, MK-64/8 MOUNT AND MK-16/2 STAND.
- CONTRACT: ARMY SOLE SOURCE/MULTI-YEAR PROCUREMENT: SACO DEFENSE GUN AND MOUNT. FIXED PRICE: MK-16/2 STAND ASSEMBLED BY NSWC/CRANE.

* RESTART OF PROCUREMENT AFTER FY-88/89/90 PROCUREMENTS WERE ZEROED BY CONGRESS.

FIGURE 30

OTHER WEAPONS (BA 4)

WEAPON	FY-89 $M/COST	FY-90 $M/COST	FY-91 $M/COST
SMALL ARMS	8.8	3.9	12.6

- DESCRIPTION: VARIOUS WEAPONS .50 CAL AND BELOW FOR SHORE BASE AND SHIP SECURITY.

FIGURE 31

OTHER WEAPONS (BA 4)

WEAPONS	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
GUN MOUNT, MODS AND SUPPORT EQUIPMENT	15.1	23.9	36.2

- DESCRIPTION: ROUTINE RELIABILITY AND MAINTAINABILITY MODS TO 5"/54, 3"/50, 5"/38, 16"/50 AND 76MM GUNS, AND MODS UNDER $2 MILLION FOR OLDER GUN SYSTEMS.

- PROCURES: FY-91: CONTINUED REACTIVATION OF 16"/50 GUN BARREL REWORK FACILITY AT WATERVLIET; COMMENCE 5"/54 PRODUCT IMPROVEMENT PROGRAM.

BUDGET ACTIVITY V - OTHER ORDNANCE

In the area of Air Launched Ordnance, we are requesting $122.1 million in FY 1991. Foremost among these programs are those for General Purpose and Practice Bombs which account for almost half the requested funding. The budget request supports procurement of various components, including fins, retarders, fuzes, nose plugs and arming wires, for the present MK-80 series general purpose bombs; in the area of Practice Bombs, the budget request supports procurement of sub-caliber bombs used for pilot training, including MK-76, BDU-48, BDU-45, and MK-83 Inert rounds. Procurement of these practice bombs allows us to maintain war reserve inventories while providing training.

We are requesting $153.1 million in FY 1991 for Ship Gun Ammunition and Other Expendable Ordnance. While no major initiatives are included here, this ordnance provides direct contributions to training and sustainability of the fleet. In particular, this higher funding requested for FY 1991 supports increased procurement of Other Ship Gun Ammunition, allowing us to improve inventory positions of 20mm through 81mm ordnance and Ship Expendable Countermeasures which include procurement of the MK-214 Decoy and the MK-186 Infrared Decoy.

2.75-INCH ROCKET

The 2.75-Inch Rocket is an air-to-ground unguided munition procured in WPN for the U. S. Navy and Marine Corps. It is used by all Navy and Marine tactical aircraft and helicopters as an anti-personnel, anti-materiel, anti-light armor and night marking weapon. It is considered the Marine Corps' weapon-of-choice in the Close-in Fire Support role and in Close Air Support. This weapon is procured as a joint program with the Army as the executive service.

MACHINE GUN AMMUNITION

The Machine Gun Ammunition procurement within WPN covers the entire spectrum of aircraft 20MM, 25MM and 30MM guns. The weapons are installed on all tactical fixed wing aircraft within the U.S Navy and Marine Corps. The AH-1 helicopter also utilizes ammunition procured under this line. The ammunition varies as the mission to include: anti-personnel, anti-armor, anti-aircraft and anti-materiel. For Marine Corps aircraft, the ammunition is used in the Close Air Support role in fixed wing Marine aircraft and in the Close-in Fire Support mission by the AH-1. For Naval aircraft, the ammunition is utilized primarily in the defense mission performed by the F-14 and F/A-18. The ammunition is procured as a joint program with the Army as the executive service.

Figures 32 and 33 summarize the fiscal year 1991 budget request for 2.75 Rockets and Machine Gun Ammunition.

BIGEYE BINARY CHEMICAL WEAPON

The Navy is procuring a binary chemical weapon in strict accordance with higher directives.

SURFACE GUN AMMUNITION

The Surface Gun Ammunition budget contains procurement for war reserve and training ammunition to support operational forces of the Navy. The Budget contains procurement and related support functions for the following types of ammunition: 3"/50, 5"/38, 5"/54, 76MM, 16"/50, Close in Weapon System (CIWS 20MM), Small Arms and Landing Party Ammunition (which includes .22 Cal through .50 Cal, assorted hand grenades and land mines), Other Ships' Gun Ammunition (which includes 20MM, 25MM, 40MM, 60MM, and 81MM Ammunition), and Pyrotechnic/Demolition devices (which include Mines, demolition charges, detonating cord, blasting caps, fuzes, cutters, impulse cartridges, shock test charges, signals, training devices and color smoke grenades). A total of 792 line items are supported within these ammunition families. The Budget also contains procurement of renovation components for inservice assets, gauge requirements, product improvement efforts for future engineering support functions, and limited procurement of non-standard items.

This Budget request is designed to support the approved forces at levels authorized by the SECDEF guidance, which includes active and Category Alpha Reserve Ships, the Naval shore establishment and other active Navy activities worldwide e.g. Mobile Construction Battalion, Explosives Ordnance Disposal (EOD) Teams, Diving and Salvage Units, Beach Master units, and Assault Craft Units.

The majority of procurements are executed through the Single Manager for Conventional Ammunition (SMCA), Army Material and Chemical Command, Rock Island, Il. A very small portion of procurements are contracted through the Ships Parts Control Center, Mechanicsburg, PA. These include such items as Cartridge Actuated Devices (CAD), Propellant Actuated Devices (PAD), and Cavity Charge Containers for procurements executed through the SMCA. The SMCA has total responsibility for contract source selection and contract award. For common service items, such as small arms ammunition, the developing service, in this case Army, is responsible for providing technical data support while the responsibility for the technical requirements for service peculiar items such as 5"/54 gun ammunition remains Navy.

GENERAL PURPOSE BOMBS

The current Navy general purpose bomb (GP bombs) family consists of MK 82 (500 lb.), MK 83 (1000 lb.), and MK 84 (2000 lb.) bombs. General purpose bombs were developed to provide a relatively low cost weapon that can be utilized to attack a variety of targets ashore or at sea.

PRACTICE BOMBS

Practice bombs provide low cost alternatives to expenditure of live GP bombs. They provide similar ballistics and, in some cases, similar weight as their live counterparts.

Figures 35 and 36 summarize the budget request for GP bombs and practice bombs.

FIGURE 32

OTHER ORDNANCE (BA 5)

$M

WEAPON	FY-89 QTY/COST*	FY-90 QTY/COST*	FY-91 QTY/COST**
2.75-INCH ROCKET	18320/$8.6	25132/$17.2	20900/$14.6

- DESCRIPTION: THE 2.75-INCH ROCKET IS A SOLE SOURCE COMPETITIVELY BID PROCUREMENT PROGRAM. MANUFACTURE OF ROCKET GRAINS IS BY GOVERNMENT-OWNED/GOVERNMENT OPERATED PLANTS (RADFORD ARMY AMMUNITION PLANT AND NAVAL ORDNANCE STATION INDIAN HEAD). INTEGRATION IS BY BEI CORP., DALLAS, TX.

* FUNDED IN OPN.
** FUNDED IN WPN.

FIGURE 33

OTHER ORDNANCE (BA 5)

$M

WEAPON	FY-89 QTY/COST	FY-90 QTY/COST	FY-91 QTY/COST
MACHINE GUN AMMO	$12.9 (OPN)	$22.9 (OPN)	$12.5 (WPN)

- DESCRIPTION: THE 20MM, 25MM AND 30MM AMMUNITION IS PRODUCED BY OLIN CORPORATION OF ST. PETERSBURG, FL. THE SOLE SOURCE MANUFACTURE IS COMPETITIVE/FIRM FIXED PRICE.

FIGURE 34

WEAPON PROCUREMENT, NAVY (BA 5)

	FY 91* $M COST
O AIR LAUNCHED ORDNANCE	122.1
O SHIP GUN AMMUNITION	116.6
O OTHER EXPENDABLE ORDNANCE	36.5

* CONTAINED IN OPN IN PREVIOUS YEARS.

FIGURE 35

GENERAL PURPOSE BOMBS (BA 5)

WEAPONS GP BOMBS	FY-90 QTY/$M COST	FY-91 QTY/$M COST
BSU-86	15000/5.1	0/0
MK-82	12000/11.9	12000/12.4
MK-83 CONICAL FIN	5600/0.8	0/0
FMU-139	78400/45.5	52000/32.5
BSU-85	14000/6.7	0/0

- DESCRIPTION: GENERAL PURPOSE BOMBS AND BOMB COMPONENTS FOR LEVEL OF EFFORT WARFARE.

- PROCURES:

FY-90:	BSU-86	COMPETITIVE
	MK-92	MCALESTER/SINGLE SOURCE
	MK-83 CONICAL FIN	COMPETITIVE
	FMU-139	COMPETITIVE
	BSU-85	IRVIN/FIXED PRICE
FY-91:	MK-82	COMPETITIVE
	FMU-139	COMPETITIVE

-ACHIEVEMENTS: OBTAINED SECOND SOURCE PRODUCER FOR THE C72/73 CABLE ASSEMBLIES. MK 14 SUSPENSION LUG SHORTAGE PROBLEM RESOLVED.

FIGURE 36

PRACTICE BOMBS (BA 5)

WEAPONS	FY-90 QTY/$M COST	FY-91 QTY/$M COST
PRACTICE BOMBS		
MK-76	477600/10.9	575,100/13.2
BDU-48/B	73700/1.5	44500/1.0
PRACTICE ROCKEYE	1900/7.6	2500/10.9
BDU-45	16200/7.2	11300/4.9
MK-83 INERT	2300/2.4	1500/1.8
LGTR	1500/7.5	0/0

- DESCRIPTION: LOW COST ALTERNATIVE TO USING GP BOMBS PROVIDING SIMILAR BALLISTICS AND SOMETIMES SIMILAR WEIGHTS TO THEIR COUNTERPARTS.

- PROCURES: PRACTICE BOMBS AND COMPONENTS.

- CONTRACT:

FY-90:	MK-76	COMPETITIVE
	BDU-48/B	COMPETITIVE
	PRACTICE ROCKEYE	COMPETITIVE
	BDU-45	COMPETITIVE
	MK-83 INERT	MCALESTER/ SINGLE SOURCE
	LGTR	COMPETITIVE
FY-91:	MK-76	COMPETITIVE
	BDU-48/A	COMPETITIVE
	PRACTICE ROCKEYE	COMPETITIVE
	BDU-45	COMPETITIVE
	MK-83 INERT	COMPETITIVE

- ACHIEVEMENTS: PRODUCTION UNDERWAY TO SUPPORT THE MK-76 PRACTICE BOMB.

BUDGET ACTIVITY VI - SPARES

Spares procurement is a vital element of weapons readiness. WPN spares and repair parts are in two categories: initial and replenishment spares. Both are procured to support the operating forces and the industrial activities which repair weapons. The quantities of initial spares required is determined in proportion to the number of end items such as torpedoes and guns which are procured and the required lead times to meet fielding of those end items. Funding for replenishment spares is based on the weapon rework cycle and the historical failure rate of weapon components. The Navy's request for Spares funding is $78.5 million in fiscal year 1991. This funding level represents about 1.3 percent of our total 1991 WPN request and provides the capability to maintain our weapons in the highest state of combat readiness. Figure 37 summarizes the Spares funding request.

FIGURE 37

SPARES (BA 6)

WEAPON	FY-89 $M COST	FY-90 $M COST	FY-91 $M COST
INITIAL SPARES			
BA-1	5.6	4.5	4.6
BA-2	30.7	56.9	47.3
BA-3	20.0	26.2	11.0
BA-4	6.0	6.3	6.9
REPLENISHMENT SPARES	15.1	17.3	8.7
TOTAL SPARES	77.3	111.3	78.5

- DESCRIPTION: INITIAL AND REPLENISHMENT SPARES DIRECTLY ASSOCIATED WITH INITIAL PROCUREMENT OF WEAPONS FUNDED IN WPN.

SUMMARY

In summary, our budget request reflects a balanced approach to priorities which are competing for limited resources. It is sound, well-priced and balanced; a carefully constructed program which will improve weapons sustainability in an affordable manner.

TRIDENT II D-5 MISSILE

Mr. DICKS. Do you have responsibility for the D-5 program?

Admiral LOCKHART. Yes, sir; in the fiscal sense.

Mr. DICKS. Just one general question.

I have been following with some concern the situation at Rocky Flats. Are you familiar with that?

Admiral LOCKHART. In general, yes, sir.

Mr. DICKS. About the triggers that you have to have. What happens if the trigger problem doesn't get resolved? Would that have any effect on the D-5 program in terms of the rate and pace with which we go forward?

Admiral LOCKHART. I can say that as of the last time I checked with the program office, there was no indication that those triggers would not be available as scheduled. So there is no concern at the program office that we would, in fact, not meet the schedule, sir.

Admiral MILLIGAN. It is my understanding that Rocky Flats' production of that material will be back on schedule some time later this year and if that happens, then we will be on track, sir.

Mr. DICKS. I hope that you are correct.

Admiral MILLIGAN. Yes, sir.

Mr. DICKS. I think you ought to be very concerned because the condition of these facilities like Rocky Flats is pretty shaky.

I mentioned this to the Secretary the other day when I was talking to him. This is something that I think deserves a lot more attention with the Department of Energy than has been given up to this point because I do think that there could be a serious problem. I think some who are opposed to D-5 could well seize upon this and say, "After all, if we can't get the plutonium triggers, can't we slow this program down?"

People are looking for a variety of ways to save money. So I would like to make certain that you all are talking to the Department of Energy in a very serious way about this because I think there are some in the Congress who could seize on this point.

Admiral MILLIGAN. We are, and it is the Department of Energy position, that I give you, as to being back on line the latter part of this year.

Mr. DICKS. According to Rear Admiral Malley the No. 3 Trident to be outfitted could be delayed. It sounds like we are okay on the first two Tridents, but after this could be a serious problem.

Admiral MILLIGAN. Yes, sir.

Mr. DICKS. After considerable program perturbations last year, it appears the D-5 missile is back on track.

Briefly bring the Committee up to date on the test program since launches were resumed in December.

Admiral LOCKHART. I will start with the test, Mr. Chairman, that made the spectacular news print and swirled around and made a lot of press.

Once the exit nozzle problem was corrected and the missile was redesigned, testing resumed on an accelerated basis, resulting in a total of 9 successes and two failures in the at sea testing program. The total test program including land based pad launches has resulted in 25 successes, one no-test, and four failures. The test criteria having been satisfied and the design approved, production resumed. The load out of the first ship USS *Tennessee* on schedule and it is my understanding that——

Mr. DICKS. When will that load out be completed on the first submarine?

Admiral LOCKHART. About the end of this month.

Mr. DICKS. What about the second Trident?

Admiral LOCKHART. I have no information on the load-out schedule for the second one, sir, but I would be more than happy to provide that information for the record.

Mr. DICKS. Okay.

[The information follows:]

The missiles and reentry bodies are now being assembled at the Strategic Weapons Facility Atlantic and will support the scheduled outload of the second TRIDENT II capable submarine this fall.

Mr. DICKS. Basically, the bottom line is you have the program fixed?

Admiral LOCKHART. That is correct, and very confident that it is fixed correctly.

Mr. DICKS. What impact on the Trident program may result from problems the rocket motor subcontractor is experiencing, as well as the problem at Rocky Flats?

Can you tell us anything about that?

Admiral LOCKHART. I am not aware of those details, Mr. Chairman, but I will provide those for the record, sir.

[The information follows:]

The earlier difficulties at Hercules, the rocket motor subcontractor, caused by a fire in the mixing of propellants for the Air Force DELTA program have been overcome and Hercules is meeting all our scheduled requirements.

The Department of Energy has notified the Navy that they currently expect to resume production this summer and will support our requirements to meet the outload of the third submarine. Admiral Malley has said that if Rocky Flats does not restart production by late summer or early fall, the third outload will be impacted. We are investigating various options available to us which include the redistribution of current reentry body assets to maintain deterrent capability in the most efficient manner. As of now, these are contingency plans which are being evaluated. We will continue this effort until the Department of Energy provides firm planning guidelines for warhead availability.

Mr. DICKS. Will you meet the schedule March 30, 1990 IOC date for the system?

Admiral LOCKHART. Yes, sir; we will meet that date.

Mr. DICKS. As I recall, we fenced some of the money for this program based on having the testing done correctly. There was a certification requirement. Have you made your certification? Has that all been taken care of? Has the money been released now because of the three successful tests?

Admiral MILLIGAN. To the best of my knowledge; yes, sir.

Admiral LOCKHART. And certification has been made, sir.

MK-48 ADCAP TORPEDO

Mr. DICKS. The MK-48 ADCAP torpedo was a subject of several critical reports last year for test shortcomings, warhead lethality questions and other issues.

Advise the Committee on the latest test data, including OPEVAL and subsequent runs, and compare them with the latest test and evaluation master plan goals.

Admiral LOCKHART. As you may recall, there were several problems associated with testing of the MK-48 torpedo, ——— and whether or not there were some—whether or not the targets used were fully representative of the threat.

Since that time, the program office has made some changes to the guidance and control software, to upgrade that program and has demonstrated ———.

Mr. DICKS. What about a comparison with the latest test and evaluation master plan goals?

Admiral LOCKHART. There still remains to be done, Mr. Chairman, a test under the ice, scheduled for later this month in April, and in addition, some additional work will be done against ———.

Mr. DICKS. If you want to flesh that out for the record, please feel free to do so.

[The information follows:]

From September 1989 to December 1989, developmental test firings were conducted with the improved ADCAP guidance and control software. This improved software will undergo operational testing in fiscal year 1990. The results of the developmental test firings as compared to the latest test and evaluation master plan (TEMP) goals are as follows. ———.

ADCAP PROCUREMENT STRATEGY

Mr. DICKS. Last year's budget assumed quantities of 320 for the foreseeable future with two producers. The 1991 budget proposes 240 torpedoes with a winner-take-all competition. Explain the reasons for the revised acquisition strategy.

Admiral LOCKHART. As you may know, Mr. Chairman, there is a closed cycle Advanced Propulsion System called CCAPS that comes in on one of the biennial block upgrades to the MK-48 ADCAP.

It is the Navy's intent to hold those quantities of the buy initially low until we can pull those capabilities in, including that improved Closed Cycle Advanced Propulsion System.

Mr. DICKS. Did that have anything to do with the change in the acquisition strategy, going from two producers down to one? Why did you do that?

Admiral LOCKHART. There was a Program Budget decision that——

Admiral MILLIGAN. If I might add, Mr. Chairman, as we have addressed the reduced top line in the future, we have had to make some difficult decisions with regard to quantities of particular weapon systems that we are buying and in some cases we are going to have to single up because it gets to the point where carrying two producers at low numbers is unaffordable.

So it is an affordability issue that brings the number down and if that number is not economical, we must reduce the number of producers.

Admiral LOCKHART. PRD-744 directed a final competitive buy-out of several programs, including the MK-48 torpedo, sir.

Mr. DICKS. So you are not going to have two producers anymore? You are just going to have one producer—did you ever have two producers?

Admiral LOCKHART. Yes, sir.

We had two producers initially, and they were——

Mr. DICKS. Hughes and Westinghouse.

Admiral **Lockhart**. Yes, sir.

Mr. **Dicks**. So you are going to have a winner take all strategy for the 240 in fiscal year 1991?

Admiral **Lockhart**. That is correct.

Mr. **Dicks**. Did OSD or the Navy propose this strategy?

Admiral **Milligan**. I believe the quantity of 240 was the Navy's proposal.

Mr. **Dicks**. Single source?

Admiral **Milligan**. Yes, sir, because it was not economical to have the two sources.

Mr. **Dicks**. How much was spent developing the second source?

Admiral **Milligan**. We will provide that for the record, Mr. Chairman.

[The information follows:]

$86 million was spent to qualify the second source contractor for the MK-48 ADCAP torpedo.

Mr. **Dicks**. Has the investment been recovered yet through competitive savings?

Admiral **Lockhart**. I think it is safe to say that it has, sir, but I would have to check and provide a definitive answer for the record.

[The information follows:]

The investment for the developing of the second source will be recovered by May, 1992.

Mr. **Dicks**. How many torpedoes will the second source have delivered by the time of the 1991 contract award?

Admiral **Milligan**. We can provide those numbers to you, Mr. Chairman.

Mr. **Dicks**. I think it is 50 to 75.

Admiral **Milligan**. It could be a low number.

[The information follows:]

The second source will have delivered sixty (60) MK-48 ADCAP torpedoes by the time of the 1991 contract award, assuming that the award date is in December, 1990.

Mr. **Dicks**. If you have only done 50 to 75, it would be hard to believe there had been competitive savings to warrant the second source competition.

Admiral **Milligan**. I agree, however, it is the future that we are dealing with, the past being the sunk cost situation, and we do have an affordability issue, not enough quantity to defend having two producers, sir.

AMRAAM MISSILE

Mr. **Dicks**. The Air Force-managed AMRAAM program has experienced many problems in the last two years which have resulted in continued low-rate production. A Defense Acquisition Board full-rate production decision is currently scheduled for May 1990.

Is the Navy convinced that AMRAAM is robust enough to withstand the environment on the F/A-18 and F-14?

Admiral **Lockhart**. Mr. Chairman, the Navy still has some concerns with the AMRAAM and they center around two basic issues.

One is cost growth and the other is reliability. We still believe it is a good missile with a lot of capability, but the reliability numbers, the goal is ——— meantime between failure. We need to demonstrate ——— between failure and right now it is running something short of that we are concerned with reliability.

Mr. DICKS. How many hours of captive carry testing have been done on these two aircraft and how many are planned?

Admiral LOCKHART. Our testing has been limited to the F/A-18 so far, and that is our first airplane to obtain the capability and the next one would be the F-14, sir.

The exact number of hours, I don't have, but I would be more than happy to provide that for the record, Mr. Chairman.

Mr. DICKS. Put that in the record.

[The information follows:]

To date, the AMRAAM captive carry reliability program has focused on the USAF F-16 and F-15 aircraft. The Navy F/A-18 has participated in both joint DT and OT firings with limited captive carry hours flown in conjunction with those firings, none of which were for score. A captive carry program will be commenced on the F/A-18 in connection with Navy initial OT when missiles are available. Details of the program are still on-going, however, the goal of 800 hours of captive carry time during Navy OT&E is planned. F-14 testing has been limited to a basic missile/aircraft separation shot until the F-14D is available for further testing and integration.

Mr. DICKS. Is the Navy concerned about the increasing costs of AMRAAM?

Admiral LOCKHART. The Navy is very much concerned with the increased cost. Affordability of all our weapon systems is becoming an increasing driver and with AMRAAM, particularly so.

Mr. DICKS. Based on escalating costs and reliability issues, among others, is it likely that the Navy will retreat from its current inventory goal of 7,000 AMRAAMS?

Admiral LOCKHART. I think that will all depend on how the pricing comes out, Mr. Chairman.

Mr. DICKS. Do you think there is any way we are going to afford 7,000 AMRAAMs, Admiral?

Admiral MILLIGAN. I think we will have to take a hard look at that in the current deliberations of POM 1992 as to where we are going in the outyears and assess our requirements for that missile and many, many other weapon systems.

Mr. DICKS. Is there any consideration to dropping out of this program entirely?

Admiral MILLIGAN. Not to my knowledge, sir. No, sir.

Admiral LOCKHART. I don't believe so.

STANDOFF LAND ATTACK MISSILE

Mr. DICKS. The Committee understands that the 1991 budget will be the last to request funding for the Harpoon line, including SLAM.

Is that correct?

Admiral LOCKHART. I believe that is correct. Yes, sir.

Mr. DICKS. What is the background to this position?

For instance, was it recommended by the Navy or DOD? Is it for budgetary or other reasons?

Admiral MILLIGAN. It is an affordability issue as well as a position of inventory on hand that we felt in the reconstruction of the fiscal year 1991 budget that that was an area where we could make an adjustment.

Admiral Lockhart. Of course, given the opportunity to buy Harpoon or SLAM, we are buying all SLAM in 1991, Mr. Chairman.

Mr. Dicks. At the end of the 1991-funded delivery period, what will be the inventory of Harpoons and SLAMs and how will it compare to the goal?

Admiral Lockhart. I will provide those numbers for the record, Mr. Chairman.

[Clerk's note.—Classified insert removed.]

Mr. Dicks. Do you know what the goal was?

Admiral Lockhart. About 360 SLAM, and that total will be about 206 at the end of the fiscal year 1991 buy.

Mr. Dicks. Is that Harpoon or SLAM?

Admiral Lockhart. That is SLAM, sir.

Mr. Dicks. What about Harpoon?

Admiral Lockhart. Air-launched Harpoon totals 994, Mr. Chairman.

Mr. Dicks. Okay.

Briefly describe the SLAM test results from last fall.

Admiral Lockhart. Very successful.

Specifically—well, I thought I had a score here to quote, but my recollection is it was very, very fine results, sir.

Mr. Dicks. Why don't you put a description in the record.

[The information follows:]

SLAM DEVELOPMENTAL TEST RESULTS

Date	Launch aircraft distance	Control aircraft distance	Target	Result
June 24, 1989	A-6E/57NM	F/A-18/70NM	30'X60' building	Bullseye.
Aug. 1, 1989	A-6E/59NM	A-6E/70NM (same as launch A/C)	24'X32' building	Bullseye.
Oct. 4, 1989	F/A-18/55NM	A-6E/70NM	Anchored ship	Bullseye.
Nov. 13, 1989	A-6E/50NM	A-7E/70NM	40'X20' building	Bullseye.
Dec. 16, 1989	F/A-18/64NM	F/A-18/75NM	24'X20' building	Bullseye.

Mr. Dicks. For the record, how many SLAM missiles do you estimate you will be able to purchase in 1990 and 1991?

Admiral Lockhart. We estimate 190 in 1990 and 215 in 1991, Mr. Chairman, and we look to buy 72 of them in 1989.

VERTICAL LAUNCHED ASROC (VLA)

Mr. Dicks. In 1989, $104 million was appropriated which when combined with amounts made available earlier was intended to procure 300 vertical launch ASROCs as an interim measure pending development of Sea Lance.

What are the results of the recent TECHEVAL, separately for the VLA missile and for the entire system including the MK-46 torpedo?

Admiral Lockhart. The recently completed TECHEVAL was a success.

There were some issues associated with that. Essentially, the testing consisted of some five flights, and included in that small number of shots, there was a no-test.

The tests met technical criteria, but the folks at OSD owing to the small sample, would like to see the results of OPEVAL before proceeding further and have some money held up, Mr. Chairman.

Mr. DICKS. What is the current status for OPEVAL and what are the reasons for the delay?

Admiral LOCKHART. OPEVAL was scheduled to begin in April of this year, sir, and it has now slipped to——

Mr. DICKS. September?

Admiral LOCKHART. No, sir.

It has now slipped to—July of this year, sir.

The Department of Defense has some money on hold until the results of the OPEVAL are complete and the number of shots is demonstrated.

Mr. DICKS. Can you tell us what the problems are?

Admiral LOCKHART. There are some questions as to whether or not the Vertical Launched Anti-submarine Rocket should be demonstrated as a system and include the performance of the MK-46 torpedo against all targets, for example, a coated SSN-688 class submarine or whether or not the VLA should be viewed as just a delivery system which would put a MK-46 torpedo in position to be able to acquire a particular submarine target, sir.

Mr. DICKS. For the record, ordinarily, successful completion of OPEVAL and a milestone IIIB decision is required before a program enters full-rate production. The funding for VLA was for a one-time buy.

Can you cite any other programs which have had to complete OPEVAL and have a milestone IIIB before continuing production which does not represent full-rate production?

Admiral LOCKHART. I cannot; no, sir.

Mr. DICKS. Comment for the record.

[The information follows:]

There are no other known surface weapons programs which have had to complete OPEVAL and have a milestone IIIB before continuing production which does not represent full-rate production.

PHALANX AMMUNITION

Mr. DICKS. Mr. McDade?

Mr. McDADE. Thank you very much, Mr. Chairman. Let's talk a bit about Phalanx ammunition. Last year, the Committee endorsed the Navy's plan to transition to the use of tungsten in penetrators for close-in weapon system ammunition.

In so doing, the Navy was directed to continually assess and test available materials and concepts so that CIWS ammunition remains cost effective and responsive to the changing threat.

What is the Navy doing to implement this direction?

Admiral MILLIGAN. We are buying the tungsten round at this time and have ceased procurement of the depleted uranium round.

Mr. McDADE. You have adhered to the requirements stated by the Committee that you continually assess and test available materials and concepts so that CIWS ammunition remains cost effective—having done that, you have a chosen tungsten?

Admiral MILLIGAN. Yes, sir.

Mr. McDADE. What testing, over what period of time, led the Navy to decide to use tungsten?

Admiral **Milligan**. The depleted uranium round had some hazards associated with it on-board ship, so we were anxious to get on to another round and the tungsten had the lethality required for the system.

Mr. **McDade**. You are saying it is safer and more lethal?

Admiral **Milligan**. Safer and it meets our lethality requirements.

Mr. **McDade**. What testing and over what period of time led you to the use of tungsten?

Put that in the record.

[The information follows:]

Testing of tungsten penetrators as a possible replacement for depleted uranium penetrators has been ongoing since 1979 at NSWC Dahlgren and NWC China Lake. These tests have included 41 live firings against live warheads, as well as, 929 depleted uranium and 679 tungsten penetrator firings against multiple plate arrays. The latter tests enable us to obtain accurate information on penetrator spall, erosion, and shatter. The tungsten penetrator has consistently provided higher velocity and mass at warhead impact, greater resistance to shatter, and higher probability of threat kill.

Mr. **McDade**. Will the Navy's continuing testing program include live-fire testing? If not, why not?

Admiral **Milligan**. If you are referring to the tungsten round, I will put in the record whether we are going to continue to test it. That is a round we are buying right now.

[The information follows:]

The Navy made the decision to transition to tungsten penetrators in lieu of depleted uranium penetrators based on overwhelming performance advantages proven through the aforementioned testing. As directed by the House of Representatives Conference Report of November 13, 1989, the Navy will continue to "assess and test candidate improved penetrator materials and concepts so that the CIWS ammunition remains cost effective and responsive to the changing threat." It is our intent to subject candidate penetrators to the multiple plate array test initially. This test provides a highly accurate simulation of penetrator performance against a variety of missile targets. We will follow-up with live warhead testing for promising penetrator material candidates.

Mr. **McDade**. Does it include live fire testing?

Admiral **Milligan**. Yes, sir.

Mr. **McDade**. Has the depleted uranium industry submitted testing samples in the past two years?

Admiral **Milligan**. Not to my knowledge.

I will supply that for the record.

[The information follows:]

Nuclear Metals, Inc. has provided numerous samples of new depleted uranium penetrators which they have formulated. These samples have been prioritized by NMI in order of preference for evaluation. Testing is in progress at NSWC Dahlgren.

Mr. **McDade**. If you find they have, tell us what you have done with the samples.

[The information follows:]

The Navy has been testing candidate penetrator materials since 1979, and continues to do so. NMI has provided numerous DU sample materials. NSWC has completed testing on many of these samples and is planning to complete testing on all candidates. To date, no test results of the DU penetrators have indicated that they have improved mechanical properties that will enable them to match the performance advantages gained with the tungsten penetrator.

Mr. McDade. Do you foresee that the Navy might return to the use of depleted uranium in the future?

Admiral Milligan. We will stay with the tungsten rounds.

Mr. McDade. Elaborate on the safety hazards using the depleted uranium rounds.

Admiral Miligan. When the rounds are fired on the ship, there is debris that remains in the area of the mounts that is of some health hazard.

I could provide a more extensive answer for the record.

[The information follows:]

The radioactive characteristics of DU penetrators make them undesirable for shipboard use. Radioactive levels at or near the ammunition magazines exceed Nuclear Regulatory Commission standards. Costly ship berthing rearrangement and heavy lead shielding has been required on many ships classes to provide protection to our sailors.

Mr. McDade. There was a plan to have a split buy between tungsten and depleted uranium going back to fiscal year 1989—there was a conversation about it?

Admiral Milligan. Yes, sir.

Mr. McDade. And to use tungsten exclusively in fiscal year 1990. What is the status of each of those procurements?

Admiral Milligan. I believe in 1990 we are buying tungsten only.

Mr. McDade. You have a split buy in 1989?

Admiral Milligan. I will check and make sure which way we went on that. We were anxious, I know, to get to the tungsten round because of the safety issue.

[The information follows:]

Transition from DU to tungsten penetrator ammunition began with the 1989 procurement. Of a total buy of 3.1 million rounds, 600 thousand use tungsten penetrators. This is consistent with the 80 percent 20 percent split approved by the Secretary of the Navy in February 1989.

Mr. McDade. In late January, Congressman Nicholas Mavroules wrote to Secretary Garrett to request another split procurement in fiscal year 1990. What has been the Navy's response to this letter?

Admiral Milligan. I don't recall seeing that response, but I feel certain that we would have responded that we prefer to buy the tungsten round, sir.

Mr. McDade. Furnish the response for the record.

[The information follows:]

The response to Congressman Mavroules' letter is being staffed within the Navy and is expected to be signed by the Secretary of the Navy soon.

[Clerk's note.—Unbeknownst to the Navy, the Secretary of the Navy sent the following letter to Congressman Mavroules:]

DEPARTMENT OF THE NAVY
OFFICE OF THE SECRETARY
WASHINGTON D C 20350 1000

11 April 1990

The Honorable Nicholas Mavroules
House of Representatives
Washington, D.C. 20515

Dear Mr. ~~Mavroules:~~ NICK

Thank you for your letter of January 20, 1990, concerning the Navy's schedule for transitioning from depleted uranium to tungsten penetrators for PHALANX Close-In Weapon System ammunition. I understand your desire to ensure that thorough and equitable testing preceded this transition.

Tungsten ammunition was initially considered in 1979 and has been evaluated in Navy laboratories through extensive warhead penetration testing and live warhead engagements. This process has included evaluating promising penetrator materials in dynamic tests at a land-based test site (NSWC/Dahlgren, VA). The results from these tests determine the material type to be used in all-up CIWS at-sea operational evaluations. These tests have included 929 DU firings and 679 tungsten firings against penetration targets, and 20 DU and 21 tungsten firings against live warheads. In all tests to date, ammunition using tungsten penetrators has consistently proven to be superior to the current DU ammunition in the following warhead kill properties:

a. Improved resistance to shatter on impact;
b. Dramatic increase in kinetic energy delivered to the target;
c. Increased individual round probability of kill; and
d. Increased range of PHALANX system engagement.

The shift to tungsten penetrators also offers advantages in storage, testing, and disposal of the rounds and eliminates any potential radiation hazard to shipboard personnel. Tungsten affords us an opportunity to deliver a more capable round to the fleet at a reduced price.

These factors led the Navy to its current acquisition strategy for the ammunition, which was forwarded to Congress in our April 4, 1989 position paper. This policy was reiterated in the November 13, 1989 Appropriations Committee Final Conference Report, which endorsed our position to proceed exclusively with tungsten penetrators in our fiscal year 1990 procurement. Our transition schedule is technically sound and achievable.

If I can be of further assistance, please do not hesitate to contact me.

Sincerely,

Larry

H. Lawrence Garrett, III
Secretary of the Navy

Mr. McDade. Please provide contract details for fiscal years 1989 and 1990 on the type ammunition procurement.

[The information follows:]

During 1989, the Navy ordered 3.1 million rounds, split 80 percent tungsten and 20 percent depleted uranium. The 1990 buy will include approximately 2.4 million tungsten rounds.

Mr. McDade. What is the procurement strategy for CIWS ammunition in fiscal year 1991?

Admiral Milligan. I will have to provide that for the record, but it is to buy the tungsten round.

[The information follows:]

The Navy FY 1991 procurement program for the CIWS service round tungsten penetrator will be executed through the U.S. Army Armament, Munitions and Chemical Command (AMCCOM). The planned procurement strategy is a competitive contract between the two qualified producers, OLIN Corporation and Kilgore Corporation, with the low bidder getting the higher percentage share of the procurement quantity. A minimum 25 percentage option clause is planned for incorporation into each producer's contract. In FY 1991, the Navy has budgeted $29.4 million for 2.3 million rounds of CIWS Tungsten penetrator ammunition.

Mr. McDade. Can you tell us what the dollars and quantity is at the present time?

Admiral Milligan. What we have in the budget?

Mr. McDade. Yes.

Admiral Milligan. That is one of the programs that was shifted from the Other Procurement, Navy appropriation over to the Weapons Procurement, Navy appropriation in 1991.

Admiral Lockhart will try to find the answer.

Mr. McDade. You can amplify it for the record.

[The information follows:]

In fiscal year 1991, the Navy has budgeted $32.8 million for 2.3 million rounds of CIWS ammunition.

RELOCATABLE OVER-THE-HORIZON RADAR (ROTHR)

Mr. McDade. I would like to direct your attention to the relocatable over-the-horizon radar. The relocatable over-the-horizon radar is a short-based high frequency radar designed to provide tactical commanders afloat with warning and location of threats beyond the range of shipboard sensors.

The Committee denied fiscal year 1990 procurement funding due to an inordinate build-up in unobligated program funds from prior year appropriations. The fiscal year 1991 budget request before the Committee is for $80.6 million which funds the procurement of the fourth ROTH-R sector.

The Navy's stated requirement is for the deployment of the ROTH-R sectors worldwide, although site locations beyond the first five have yet to be chosen. Further, pending the completion of operational testing, a full-rate production has yet to be made.

If fiscal year 1991 funding is approved, the Navy will exercise a contract option for the award of the fourth sector, guaranteeing that 33 percent of the stated inventory requirement will be under contract prior to full-rate production approval. Tell us why you need to get into that kind of posture. Why do you need to have an obligation like that before you get full-rate production approval?

Admiral **Milligan**. I will go back to 1988 and 1989 where we were buying systems 1 through 3 in the Other Procurement, Navy appropriation. That contract was awarded in December of 1989. There is yet another system that was procured earlier in the RDT&E appropriation.

The first one was originally installed in Virginia as a test site and is now the number one system in Amchitka. The other three systems bought out of 1988 and 1989 funds are to be installed in Virginia as well as Guam and the United Kingdom. The system requested in the 1991 budget would be the second one for installation at Amchitka.

The Secretary of the Navy reported to the committee in December 1989 the details of our operational test and those details determined that the system was effective and suitable for wide-area air surveillance, and, therefore, we proceeded with low-rate initial production. Those are the three that were awarded with the 1988 and 1989 Other Procurement, Navy funds.

There is a program, a desire for 12 of these systems worldwide. Seven of those have been detailed as to what locations they would go into, two to Amchitka, three to Guam, one to Virginia, and the other to the United Kingdom.

Mr. **McDade**. You are going pretty quick on this program. You have set up a lot of contracts and you don't have sites. You haven't got high production approval.

Admiral **Milligan**. This is a high-priority program with the CINCs. It provides the commander at sea with long-range air detection that far exceeds the organic sensor systems of his battlegroup.

Mr. **McDade**. We understand your requirement, but you have five sites yet to be selected. Do you have potential sites in mind? Have you gotten to the point where you can give a schematic on where those sites might be?

Admiral **Milligan**. I don't believe it has been determined where those next five sites would be located. However, the sites for the four systems, the three we have already procured in the OPN, and the R&D system have been identified.

Mr. **McDade**. There must be some information about candidate sites, don't you think?

Admiral **Milligan**. If there is, I will provide that for the record.

[Clerk's note.—Classified insert removed.]

Mr. **McDade**. I want to ask about the results of your operational testing with respect to the performance of air and ship tracking capability.

Admiral **Milligan**. The testing has been very good in response to the air environment. However, the testing has not been favorable with regard to surface tracking.

We will continue to pursue that capability, but it is my opinion that we would go on with the system with only the air capability because of the importance of that capability.

Mr. **McDade**. Can you describe the importance to the Committee? Give us a statement for the record indicating what the problem is.

[The information follows:]

ROTHR's current ship tracking capabilities will be evaluated during testing this year. A decision to proceed with known improvements to ship tracking has been deferred pending completion of this year's evaluation.

The major difficulty with ship tracking is the physical limitation of the ionosphere to enable dwell on target times sufficient to detect slow moving targets and discriminate them from the ocean clutter return. Ocean clutter return from the surface wave action generates doppler frequency return corresponding to radial velocities in the 5 to 15 knot range. In addition, the ocean currents can cause the zero doppler return to be offset 2 to 4 knots from zero radial velocity.

Mr. McDade. Tell us about your operational testing regarding the adequacy of supporting communication links between ROTH-R and fleet ocean surveillance centers as well as between ROTH-R and operational surface units.

What is going on there?

Admiral Milligan. I will have to provide that for the record. I am sure we have those communication links up to the satellites.

[Clerk's note.—Classified insert removed.]

Mr. McDade. We need to get strong responses on this because the Committee is concerned about the level of the way the dollars are going out.

Do you have a further operational testing plan?

Admiral Milligan. Yes, sir.

When the system moved from Virginia to Amchitka is on line, we will continue to do operational testing commencing in October of this year, sir.

Mr. McDade. If you find that the present configuration is not capable of tracking surface targets, do you intend to go with an air track capability only?

Admiral Milligan. Yes, we do.

Mr. McDade. The Other Procurement, Navy budget justification book states that the contract option will be awarded in April 1991, yet the Tactical Intelligence and Related Activities justification book states that option will be awarded in the first quarter of fiscal year 1992.

What date is correct?

Admiral Milligan. We should have our FOT&E completed and approval for full production cleared to proceed with award of this contract for the fourth system in OPN, the 1991 system, in April 1991, sir.

Mr. McDade. Why does the book just say 1992? Do you have any idea?

Admiral Milligan. No, sir.

Mr. McDade. You don't want to erode our confidence—we are having a lot of concerns here and we are trying to express them back to your side of the table.

Admiral Milligan. Too many back-up books, I suppose, but the contract is to be awarded in April 1991.

Mr. McDade. The deployment of the fourth ROTH-R sector is slated for the United Kingdon. Describe the terms of the memorandum of understanding between the United States and the United Kingdom with regard to operational control of the ROTH-R sector.

Admiral Milligan. It is the fourth unit that goes to the United Kingdom, the third bought in this appropriation, the first having been bought in RDT&E?

Mr. McDade. Who is going to have operational control?

Admiral **MILLIGAN**. The MOU will be signed within a month or so, at which time it will be carried over to the United Kingdom for signature.

I have details with regard to who will provide what, number of people et cetera, and the cost as far as maintenance for the system between the United States and the United Kingdom.

Operationally, I would say it will be a joint system. If that is not correct, I will correct it for the record because the United Kingdom is providing financial support as well as manpower.

[The information follows:]

The U.S. will have operational control of ROTH-R slated for the United Kingdom.

Mr. **MCDADE**. We were going to ask you about burden-sharing of the costs.

Admiral **MILLIGAN**. The United States will provide 15 individuals, and MILCON to bring facilities up to standards where the system is being installed. The United Kingdon is providing land and the predominance of the Military Construction cost.

Mr. **MCDADE**. What is the total Military Construction cost?

Admiral **MILLIGAN**. I will provide that for the record.

[The information follows:]

The MILCON cost for ROTH-R United Kingdom is estimated to be $21.7 million. The United Kingdom has budgeted $20 million and the U.S. has budgeted $1.7 million in fiscal year 1991 for U.S. unique Military Construction requirements (e.g. safety, security).

Mr. **MCDADE**. How many are United States people?

Admiral **MILLIGAN**. Fifteen United States and sixty-four United Kingdom. That is my understanding of the MOU as now drafted.

Mr. **MCDADE**. But not accepted?

Admiral **MILLIGAN**. It will not be signed by our side until April.

Mr. **MCDADE**. When do you expect it back?

Admiral **MILLIGAN**. It will be hand carried over to the United Kingdom, so I would expect rapid response.

Mr. **MCDADE**. Put a time frame on it. When is it going to get back here?

[The information follows:]

The ROTH-R United Kingdom MOU has been staffed through both governments, and will be signed by 20 April 1990, at the Four Powers Conference in the United Kingdom.

Mr. **MCDADE**. If the ship tracking capability for the ROTH-R system remains extremely limited, what requirement remains for the United Kingdom ROTH-R sector? What is the requirement if you are not tracking ships?

Admiral **MILLIGAN**. As best I can say—I will amplify this for the record—but it seems to me we have the same air coverage requirement from the United Kingdom as we would any other location we install the ROTH-R.

[The information follows:]

The primary operational requirement for ROTH-R United Kingdom is air surveillance of the Norwegian Sea. Ship surveillance is a secondary requirement.

Mr. **MCDADE**. If you have any different information than that, put it into the record.

Admiral **MILLIGAN**. Yes, sir, I will.

[The informaton follows:]

The statement is correct. We have the same air coverage requirement from the United Kingdom as we would at any other location where ROTHR is installed. The Primary operational requirement for ROTH-R has always been Air Surveillance.

Mr. McDade. Thank you, Mr. Chairman.

Mr. Murtha. Mr. Miller.

VLA TESTING

Mr. Miller. Thank you.

I understand you had an opportunity to discuss the vertical launched ASROC a while ago and to carry that conversation further, would you comment on the launch reliability and accuracy of torpedo delivery as demonstrated by the VLA during its recent testing?

Admiral Lockhart. The short answer, Mr. Miller, is with one exception the system delivered a torpedo in such a position to acquire a submarine target.

There was one failure when the missile didn't put the torpedo——

Mr. Miller. One failure out of how many?

Admiral Lockhart. One—the number five sticks in my mind, sir. Let me refresh my memory.

I will provide the details for the record.

Mr. Miller. If you would provide that for the record, I would appreciate it.

[The information follows:]

During TECHEVAL, VLA placed a fully operational torpedo in the water and demonstrated accuracy within the VLA circular error probabiity requirement for four of five flights. The fifth missile did not stage properly and the torpedo was lost.

Mr. Miller. The Navy continues to describe ASW as its highest warfare priority, and with the Sea Lance common stand-off weapon program being terminated, how will the Navy accommodate stand-off ASW in our surface fleet?

Admiral Lockhart. In two basic ways, Mr. Miller.

First of all, with the helicopter that is organic to many of our FFG-7 class, our DD-963 class as well as our CG-47 class, the LAMPS MK-III, which is capable of carrying two MK-46 torpedoes to a range of about 120 miles from the ship.

In addition, if it is a carrier battlegroup, there are organic S-3s and ASW helicopters assigned to the aircraft carrier which can deliver torpedo ordance in those same ranges or can be supplemented, of course, by land-based P-3 airplanes that can deliver torpedoes.

The other way, of course, is with Vertical Launch Anti-Submarine Rocket.

Mr. Miller. Are you satisfied with the range demonstrated by VLA with regard to the range targeting capability of our surface combatants?

Admiral Lockhart. I think there is no question given the range of the MK-46 torpedo delivered by a vertical launch ASROC that that ——— range is well within the targeting capability of our surface ships, particularly those that are equipped with the SQQ-89 towed array system, sir.

MOLDED CASE CIRCUIT BREAKERS

Mr. **Miller**. One other question, Mr. Chairman, if I have the time left—I see continuously requests for molded case circuit breakers year after year.

What is so new about a molded case circuit breaker that we have $6 million added into the budget—what is so much different about this?

Admiral **Milligan**. That is an add-on that was made by the Congress in fiscal year 1990. We appreciate the Congress' interest in helping us there, but we are looking at what industry is doing in developing such things as a molded case circuit breaker.

There is the likelihood that we could get a circuit breaker that will be faster reacting to power fluctuations that would prevent casualties. There is no money in the fiscal year 1991 budget for the molded case circuit breaker at this time, sir, just the add-on from the Congress in 1990.

Mr. **Miller**. Why do we need such a molded case circuit breaker? It seems that we would have developed such circuit breakers in the past.

Are you having something special that would be sealed in such a way that saltwater doesn't get in? We really have that type of circuit breaker. You can buy it off the shelf.

Admiral **Milligan**. This is an industry issue that the Congress plussed up the money for us to look at.

To the degree that it provides a circuit breaker that is a quicker reacting circuit breaker and when you have a fluctuating of power, it could prevent you from having damage to equipment of the ship.

Mr. **Miller**. Would it be something that would be extremely high or large or carry a large load or operate under high voltage? I am trying to find out what is the reason for having molded case circuit breakers in here continuously.

Admiral **Milligan**. Those are technical questions and I will provide a description of what is being talked about for the record.

All I know is we are not funding it in 1991, but we are looking at what industry is doing and if it is a favorable program that would give us a quicker reaction circuit breaker to prevent damage from fluctuations, we would be interested in pursuing that, sir.

Mr. **Miller**. If you have other information that you could include in the record, I hope you would.

[The information follows:]

Electro-mechanical circuit breakers use thermal-magnetic trip units. These trip units are shock sensitive and this type has tripped during ship shock tests. In some cases, critical weapons and electronics systems lost power when the circuit breaker tripped. The thermal-magnetic trip units have been modified to improve shock survivability but further improvements are impossible because of the innate design of the devices. The molded case circuit breakers replaces the trip units with shock insensitive solid state units.

The solid state sensing and control will be available for 60HZ and 400HZ applications. The circuit breakers with solid state sensing and control trip units will be direct replacements for shock sensitive circuit breakers with thermal-magnetic trip units. This will allow retrofitting to obtain improvements in reliability, survivability and maintainability on in-service ships. This equipment is required for CV's, CG-47 class & DDG-51 class ships.

Mr. **Miller**. Thank you, Mr. Chairman.

Mr. **Dicks**. Mr. Hefner.

PHOENIX MISSILE

Mr. **Hefner**. Thank you, Mr. Chairman. I have a couple of questions.

What is the Phoenix inventory objective and what will be the maximum number of missiles in the inventory?

Admiral **Lockhart**. The OSD-determined goal is 3,356 Phoenix, Mr. Hefner.

Mr. **Hefner**. What load-out rate will that permit for the fleet of the F-14s?

Amiral **Lockhart**. It would be a function of the number of carriers and the number of the load-out of a particular carrier.

I can provide that for the record.

[The information follows:]

The OSD-determined goal is ——— and our maximum inventory of AIM-54C missiles is projected to be ———. Actual carrier loadouts vary by type CV, however, our inventory will support slightly more than two loadouts of four Phoenix each for a 14 CVBG deployed fleet of F-14 aircraft.

Mr. **Hefner**. You don't have that information with you?

Mr. **Dicks**. Do any of your back-up witnesses have the information? I must tell you I am not very impressed with the preparation that has gone into this hearing.

We have had this problem, Congressman Hefner, from the start of this hearing. I think when witnesses come to address this Committee, we expect you to be prepared. This is not a very good demonstration of understanding on these programs.

Mr. **Hefner**. If you don't have it, I would like to have it, but it seems to me you could tell me what it would allow at that level.

Mr. **Hefner**. What is the estimated production gap until a follow-on to the Phoenix, the advanced air-to-air missile comes into production?

Admiral **Lockhart**. The advanced air-to-air missile, would come on line until about ———.

Mr. **Hefner**. What kind of gap would we have until we get the new system into the fleet? We are trying to make a good decision here.

Admiral **Lockhart**. We would have about a ———.

Mr. **Hefner**. You are proposing eliminating a program this year and you tell us we are going to have a ——— before another system is available. Would that be reasonable to assume?

Admiral **Lockhart**. Yes.

I would again point out to the fact that the Navy is looking at the threat in terms of the events in Eastern Europe and worldwide, and affordability issues, and just what we can afford to buy and how much of the inventory objectives we can afford, sir.

Mr. **Hefner**. The contractor has indicated that production can be stretched out and the line kept open for one more year at an additional cost of $30 million in 1991.

Now what is the Navy's opinion of the advisability and the cost estimate to defer a decision to terminate Phoenix for one year?

Admiral **Lockhart**. Phoenix was terminated as an affordability issue.

Mr. **Hefner**. I want the Navy's opinion.

That PBD, is what OSD sends you. I want to know what the Navy's position is if you have one.

Admiral **Milligan**. I am the Budget Officer of the Navy. I don't know of the proposal that you alluded to with regard to keeping the line open for $30 million. We have to weigh that proposal against our program objective——

Mr. **Hefner**. You haven't heard that?

Admiral **Milligan**. No.

We will look into it.

If inventory exceeds program requirement, it may not only be an affordability issue, but a non-need issue.

[The information follows:]

The Navy made the difficult decision to terminate Phoenix production with the fiscal year 1990 procurement. Extending production deliveries with any associated increase in cost would have an unacceptable impact on higher priority programs. The Navy's estimate of the cost of the one-year extension, assuming 180 missiles from the fiscal year 1990 buy were delayed to deliver in fiscal year 1992, would be $103 million—$59 million in contractor costs (including factory implementation and subcontractor technical support) and $44 million in government costs (production support, development/operatonal testing and spares).

Mr. **Hefner**. I have other questions for the record that we would like some indepth answers to.

Thank you, Mr. Chairman.

[Clerk's note.—Questions submitted by Mr. Hefner and the answers thereto follow:]

ECONOMIC BUYS OF MUNITIONS

Question. Admiral Lockhart, you seem to have the responsibility for procuring most of the missiles and torpedoes that the Navy buys. I have been concerned that we don't do a good job in buying these munitions at economic levels that make good sense. What has the Navy done to buy these systems at economically sound rates?

Answer. The Navy has procured its munitions at optimum procurement rates that maintain a balance between the warfighting requirements of the fleet and the funding allocations available. Where quantities are high such as TOMAHAWK, dual source competition, quality and efficiency incentive programs have facilitated munition procurements at economically sound rates. In cases where quantities have been reduced from our prior planned procurement levels, such as MK-48 ADCAP and MK-15 CIWS, we have decided to revert from dual to a winner-take-all single source at economic production rates to maximize savings. In some cases, such as HARPOON, where sole source procurements currently exist and quantities are at near minimum sustaining production rates because we are near or at the end of our requirements, we are securing forward pricing agreements of priced options for succeeding year buys.

Question. The committee sees too many requests to buy systems at rates that don't even reach the minimum sustaining level for the facilities we have on line. Didn't you just finish qualifying a second source for the Phoenix and then terminate the program? Does that make sense to you?

Answer. The second source qualification of Raytheon was completed just in time for full competition of the last Phoenix procurement. Termination of Phoenix in fiscal year 1990 was not envisioned when the decision to bring on a second source was made. However, the dramatic reduction of Phoenix unit price for 1990 is a result of both strong competition and program completion.

Question. Could you provide for the record the minimum sustaining rate, the most economic production rate and the premium you pay by going to the lower rate for the missiles and torpedoes in your program?

Answer.

Missile/torpedo	Minimum sustaining rate dual/single (yr.)	Most economic production rate dual/single (yr.)	Shifts	Premium paid going to the lower rate dual/single (percent)
Standard missile	960/480	2000/1200	Single. (1–8–5)	5–9
Rolling airframe missile	360	720	Single. (1–8–5)	15
MK–50 torpedo	435/175	600/288		27
Penguin	48	180		20
Tomahawk	264/120	400/240	Double. (2–8–5)	([1])
MK–48 advanced capability torpedo	240/120	600/360	Triple. (3–8–5)	21.8–33.9
			Single. (1–8–5)	

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[1] N/A—at most economic production rate.

VERTICAL LAUNCHED ASROC

Question. There is $30 million in the Navy development budget to incorporate a MK–50 torpedo warhead as a more lethal payload than the MK–46. What do you estimate will be the cost to develop this modification and test it before it can be deployed to the fleet? What are we speaking of in terms of timing before deployment?

Answer. The Navy's estimate to develop the MK–50 variant of VLA is $175 million with initial deliveries to the fleet in 1998.

Question. What has to be done in terms of testing VLA with the proposed MK–50 warhead? Certainly a full flight demonstration will not be required since this has just been demonstrated with the MK–46 torpedo.

Answer. ———.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner.]

Mr. DICKS. Mr. Young?

MK–46 TORPEDO SPARES

Mr. YOUNG. Thank you, Mr. Chairman.

Admiral, last year Congress provided the Navy with additional funding to procure the after-body spares for the MK–46 torpedo.

What is the status of that program?

Admiral MILLIGAN. Admiral Lockhart will answer that. He is the Weapons Procurement Appropriation sponsor for the Navy.

Admiral LOCKHART. Eighteen million was provided, appropriated, but not authorized so no action has been taken, Mr. Young.

Mr. **Young.** So you are standing by waiting for authorization; is that correct?

Admiral **Lockhart.** That is correct.

Mr. **Young.** Do you have any indication that the authorizing committee is going to authorize this?

Admiral **Lockhart.** I have no such indication, sir.

Admiral **Milligan.** The DOD is working with the authorization side of the Congress to try to resolve those issues regarding appropriated but not authorized, sir.

Mr. **Young.** Is this concerned an important program, one that we should continue to work or should we just let it go away if nothing else happened?

Admiral **Lockhart.** I don't have a feel for that, Mr. Young. I just don't.

METALIZED GLASS CHAFF

Mr. **Young.** Let me ask you on another subject, metal glass chaff. We have been producing chaff and using chaff for a long time. However, the use of the chaff has been declining so the procurement of chaff has been declining.

I understand that we only have two producers of metalized glass chaff in the United States. Is that accurate?

Admiral **Milligan.** My staff tells me there are two or three producers, sir, but I will provide a more detailed answer.

[The information follows:]

There are two producers of glass chaff in the United States—Lundy Technical Center, Inc., Pompano Beach, Florida and Tracor M. B. Associates, Inc., Lillington, North Carolina.

Mr. **Young.** I have been told that there are two and that because of the reducing procurements, it is questionable whether either one of them will be able to stay in that business.

Chaff becomes very important in certain situations and even if the big threat goes away, the threat that would require the use of chaff is still there, meaning low-intensity-type conflicts, meaning narcoterrorists armed with surface-to-air missiles.

If the two producers in the United States both closed up because of lack of procurement, where would we get our chaff?

Admiral **Milligan.** On a priority basis, we would have to look at the mobilization base for that production capability and preclude what you are talking of from happening.

Obviously, if our production quantities go down to the point that we can only support one producer, then we have to make the decision whether coming down to one is a smart decision and if not we have to pay the price of keeping two producers available.

Mr. **Young.** Has the Navy done a study on this?

Admiral **Milligan.** Not to my knowledge, Mr. Young. I could supply that information for the record.

Mr. **Young.** Please do that.

[The information follows:]

Yes, the Navy has conducted studies to determine the number of chaff producers required to meet annual requirements and for a mobilization base (MOB). With the current inventory and both companies producing at a maximum production rate, mobilization requirements can be met for the first 12 months of a global conventional war based on service provided usage planning factors.

Neither producer can sustain the MOB requirement alone.

Mr. YOUNG. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Livingston.

ADVANCED VIDEO PROCESSOR

Mr. LIVINGSTON. Thank you.

The advanced video processor is an enhanced Navy display development that has applicability to all surface combatants. The AVP is being developed as a Navy standard to improve video display systems.

Last year, Congress and, in particular, this Committee, directed the Navy to proceed with the procurement of a modern, cost-saving video processor. Specifically, the conferees directed ". . . that the Navy fiscal year 1990 production of a total of 33 units designated for SURTASS and other uses is to proceed as previously planned. Further, the conferees direct production of AVP, for DDG–51 deployment is to begin in fiscal year 1991 without fail."

What has the Department done to execute this congressional direction?

Admiral MILLIGAN. The response to that direction in the report is very close to final staffing in the Pentagon and will come to the Committee shortly.

We are planning to procure 40 of those units in the fiscal year 1990 budget, 11 of which will be installed in the TAGOS ships, 2 additional to support the TAGOS program, and the other 27 will support the SQQ–89 basic and improved programs at the laboratory or shore sites.

In fiscal year 1991, we will follow the direction of the Congress and we will be procuring 30 units for the DDG–51 and they will be procured in the shipbuilding and conversion appropriation and eight units that are going into the FFG–7 and DDG–693 class. There are five additional TAGOS units in fiscal year 1991 to bring that up to 43, sir.

Mr. LIVINGSTON. When will contract award occur for the fiscal year 1990 AVP program?

Admiral MILLIGAN. We intend to award that contract in the first quarter of fiscal year 1991.

Mr. LIVINGSTON. You have already said the ships on which they will be installed, two TAGOS, 27——

Admiral MILLIGAN. There will be a total of 40 in fiscal year 1990 procurement. Eleven will go into TAGOS hulls and the others will go into laboratory shore sites for the SQQ–89 basic and improved systems and to support the SURTASS program, which is the TAGOS program.

Mr. LIVINGSTON. Part of the cost savings to be achieved by the introduction of the AVP system as predicated on the existence of a stable production rate. Why do the number of AVP units to be procured fluctuate? They have in the past, apparently.

Admiral MILLIGAN. In the future, we are looking at 40 in fiscal year 1990 to 43 for fiscal year 1991, so that is relatively stable.

Mr. LIVINGSTON. Would you anticipate a steady buy into the outyears?

Admiral Milligan. This program has a lot of support in the Pentagon and the Navy Department.

I have to say as we go into POM 1992, this program will have to be looked at as well as all other programs, but I foresee that we will be supporting it; yes, sir.

USS DEDALO

Mr. Livingston. Good.

I have a letter from your department, Admiral, with respect to the USS *Dedalo,* which is an item in New Orleans.

I would hope that we might be able to get an answer to that pretty soon.

Admiral Milligan. I received the letter personally from you and responded a week or ten days ago.

It took some time to develop a response because we had to send a survey team down to take a look at the ship.

Mr. Livingston. So I can expect to see the response shortly. Thank you.

Thank you, Mr. Chairman.

Mr. Murtha. Mr. Dicks.

MILSTAR PROGRAM

Mr. Dicks. Thank you.

A total of $52 million is requested for the procurement of 35 terminals in the Navy portion of the MILSTAR terminal program.

What R&D remains on the Navy's MILSTAR terminal program?

Admiral Milligan. I don't have an R&D figure for you. I know that we are procuring terminals in support of the MILSTAR program.

The number is upwards of a total of 100 through the fiscal year 1991 budget. We are building to a total of 371 terminals for our afloat forces and 64 that will support EHF requirements ashore.

Mr. Dicks. What ships will you be giving priority to in terms of the installation of the MILSTAR terminal?

Admiral Milligan. First priority will go to our battlegroup combatants and SSN's and SSBN's and installation will take place during the normal overhaul cycle.

Mr. Dicks. Provide for the record terminals for the fiscal year 1990 and 1991 funds.

[The information follows:]

The number of Navy EHF SATCOM terminals to be procured by Other Procurement, Navy (OPN) funding in fiscal year 1990 and fiscal year 1991 is as follows:

	Fiscal year 1990 quantity	Fiscal year 1991 quantity
Ship Terminals	12	35
Shore Terminals	5	5

Mr. Dicks. Provide also for the record the installation costs associated with the fiscal year 1991 request of $52 million for the procurement of Navy MILSTAR terminals.

[The information follows:]

Of the $42 million budgeted for installation costs in fiscal year 1991, approximately $38.7 million is associated with installation of EHF terminals. The remaining installation costs will install other SATCOM equipment budgeted for procurement in fiscal year 1991.

Admiral **Milligan**. I can give you the installation number now. There is $41.9 million in that line item associated with installation.

That is the money that used to be funded in the operations and maintenance account that is now funded in the Other Procurement, Navy account.

BSY-2 SYSTEM

Mr. **Dicks**. A total of $143.9 million is requested for procurement of the Navy BSY-2 combat system which will provide combat control, acoustics and displays for the new construction SSN-21 class submarines.

The General Accounting Office has stated that the total developmental and procurement costs for the planned AN/BSY-2 systems is $9.1 billion.

According to the Navy RDT&E justification book, the total funding required to complete RDT&E after fiscal year 1991 for the AN/BSY-2 is almost $2 billion. Do you concur with that figure?

Admiral **Milligan**. I would have to validate the figure, sir.

At the end of fiscal year 1991, we will have obligated 65 percent of the requirement for RDT&E for the BSY-2 system and I would also amplify by saying there are currently no RDT&E issues that would affect what we are procuring in fiscal years 1990 and 1991 under the BSY-2, which is essentially the maintenance trainer in 1990 and the software support facility in fiscal year 1991.

Those programs need to move on now in order to provide training and testing facilities that must be available in order to train the first crew for the initial SSN-21 when it comes on line, sir.

Mr. **Dicks**. Provide for the record a description of the RDT&E that remains on this program, along with the major milestones within the development program.

[The information follows:]

The AN/BSY-2 Submarine Combat System Program is in the detailed design phase of hardware and software development. Remaining RDT&E in the Full Scale Development phase of AN/BSY-2 includes contained critical item development and testing, software and hardware test and integration, shipyard installation and testing, combat system installation certification and technical and operational evaluations. Critical milestones are as follows:

Program milestone	*Date*
Combat System delivery to SSN 21	November 1993
Final software delivery to SSN 21	November 1994
IOC (Ship/Combat System)	May 1995
Complete Missile DT (DT-IIE)	December 1995
Complete Missile OT (OT-IIB)	December 1995
Complete AN/BSY-2 TECHEVAL	August 1997
Complete AN/BSY-2 OPEVAL	October 1997

Mr. **Dicks**. What material would you use to describe the level of concurrency in this program?

Admiral **Milligan**. I would say there is concurrency with R&D still being spent on the program, but that concurrency, I don't believe, impacts what we are doing in OPN because there are no problems that would affect what we are buying in the program now.

Mr. DICKS. Last year, in a response to a GAO study on the AN/BSY-2, the Defense Department stated, "The AN/BSY-2 program has not yet reached the point of maturity to make assessments as to how any portion of the final system will actually be configured."

Do you agree with that statement?

Admiral MILLIGAN. I will have to research that, sir. I will have to review the GAO report and provide an answer for the record, sir.

Mr. DICKS. That is fine.

[The information follows:]

Last year, in response to a GAO study on the AN/BSY-2, the Department of Defense stated "the AN/BSY-2 program has not yet reached the point of maturity to make assessments as to how any portion of the final system will be configured.

At the time that the statement was made it was true. Since then the program has progressed to the point where the Critical Detailed Design Phase (as defined by DOD-STD-2167) and final system configuration is known, mature and stable.

Mr. MURTHA. Mr. Hefner.

Mr. HEFNER. I have no further questions, Mr. Chairman.

Mr. MILLER. No further questions.

Mr. MURTHA. Thank you very much.

We have questions that Mr. Wilson would like to ask for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Wilson and the answers thereto follow:]

OFFSHORE PETROLEUM DISCHARGE SYSTEM

Question. In its actions on Department of Defense Fiscal Year 1990 budget, Congress provided $16.5 million for the Offshore Petroleum Discharge System (OPDS). This system is the sixth in a program, the total requirement for which had been established as seven. The Congress authorized and appropriated funds for this sixth system out of the conviction that this requirement was valid, and that it was prudent to exercise a fixed price option to an existing contract, negotiated in 1986 at a very advantageous price. To the best of my knowledge, there has been no formal change in this requirement.

Department of Defense has proposed diverting this $16.5 million for use as a billpayer in Reprogramming Number Fiscal Year 1990-8PA. The SASC has specifically denied the $16.5 million for the OPDS as a funding source for the reprogramming.

Given the SASC action, does the Department now intend to utilize these funds for the purpose authorized and appropriated by Congress? If not, why not?

Answer. OPDS is an important program, however, OPDS funding requirement must be evaluated among total Naval funding priorities. New planning scenarios, currently under development, will identify the basis for OPDS requirements which will consider the changing world situation. Prudent management in a constrained fiscal environment necessitates deferring the OPDS procurement until evaluation of the study results.

Question. The reprogramming document says that a sixth OPDS would be in excess to current requirements.

Why was the operational requirement (OR) changed from seven to five systems?

What formal analysis was conducted to justify this change? Who conducted this formal analysis and when did they do it?

Answer. The OR has not been changed from seven to five systems. However, the original number of systems (seven) was based on a potential global confrontation; that is, a world wide contingency coupled with a Soviet confrontation in the third world. The Joint Chiefs of Staff (JCS) and the Secretary of Defense are generating new planning scenarios at this time. The exact number of OPDS required is dependent upon post-scenario analysis which has not yet been conducted.

Question. Were the Commanders-in-Chief, the Army, the Marine Corps, and the Navy requirements sponsor requested to provide input to this analysis? What were those inputs? If these inputs were not sought, how could the lowered requirement have been established?

Answer. The published requirement was based on a global situation significantly different from the one that exists today. Following the development of new planning scenarios based on the changing world situation by the Joint Chiefs of Staff/Secretary of Defense, an analysis will be conducted, incorporating input from Commanders-in-Chief and the services, to determine the future OPDS requirement.

Question. Please provide a copy of the current requirements documentation.

Answer. There is no current requirement document that specifies the number of OPDS required. The last published requirement, which is now outdated, was based on global situation significantly different from the one that exists today. Following the development of new planning scenarios based on the changing world situation by the Joint Chiefs of Staff/Secretary of Defense, an analysis will be conducted, incorporating input from Commanders-in-Chief and the services, to determine the future OPDS requirement.

Question. Changes in Eastern Europe have been cited lately as the reason for some changes in military requirements. However, the previous operational scenarios for OPDS briefed to this Committee call for its deployment in contingencies mainly in such areas of the globe as Southwest Asia, but not to facilitized areas like Europe.

In light of recent events, doesn't it appear likely that in coming years the United States will concentrate even more of its attention and its military assets to contingencies outside of Europe?

Is it not reasonable to project stable, if not increasing, requirements for assets needed to prepare for such contingencies?

Answer. The Joint Chiefs of Staff (JCS) and the Secretary of Defense are generating new planning scenarios at this time based on the changing world situation. Current OPDS requirements were based on planning assumptions involving a world wide contingency coupled with a Soviet confrontation in the third world. Consequently, the impact of changes in Eastern Europe on OPDS is unknown, pending post-scenario analysis.

It is believed that once the results of this analysis are known, an accurate and reasonable stable OPDS requirement can be ascertained.

Question. The Offshore Petroleum Discharge System (OPDS) provides equipment which provides petroleum products via tanker ships to U.S. Marine Corps and Army combat units in areas of the world where port facilities may not exist or have been rendered unusable by enemy action. Last year the Congress provided $16,500,000 for the procurement of an OPDS system.

The Navy recently proposed using the OPDS funds as a source of funds for reprogramming. The Senate Armed Services Committee denied these funds as a source, and this Committee, although it has not acted yet on the reprogramming, opposes using these funds as a source.

Given Congressional opposition to using these funds as a source for reprogramming or transfer, what are the Navy's plans for proceeding with this program?

Answer. OPDS is an important program, however, OPDS funding requirements must be evaluated among total Naval funding priorities. New planning scenarios, currently under development, will identify the basis for OPDS requirements which will consider the changing world situation. Prudent management in a constrained fiscal environment necessitates deferring the OPDS procurement until evaluation of the study results.

MK-48 ADCAP

Question. Last year's budget assumed quantities of 320 for the forseeable future with two producers. The 1991 budget proposes 240 torpedoes with a winner take all competition. Explain the reasons for the revised acquisition strategy. Did OSD or the Navy propose this strategy?

Answer. The Navy submitted in the 1991 budget an annual procurement rate of 240 MK-48 ADCAP torpedoes. This rate was proposed to maintain the MK-48 ADCAP production at a reduced level until major weapon systems upgrades could be operationally tested and incorporated into the MK-48 ADCAP. The single source, winner take all acquisition strategy was a program budget decision by OSD. This decision was based on the fact that an annual procurement rate of 240 torpedoes no economic dividend could be achieved through dual source competition.

HARM MISSILE

Question. Last year the Committee added a total of $69 million to buy more HARM missiles for the Navy and Air Force. This action was taken to provide for a more economical production rate. The additional funds have been proposed for deferral.

Did the Navy recommend that the congressional add-on be deferred?

Answer. No. The amount appropriated and not authorized for the Navy was $13.9 million for 100 HARM missiles; however, that dollar amount is insufficient to procure 100 HARM missiles. The $13.9 million was deferred by OSD action.

Question. What is the status of the Block IV improvement and of the Low Cost Seeker?

Answer. The Block IV program is currently on schedule with initial procurements planned to start in fiscal year 1991. The Low Cost Seeker program is currently two months behind schedule. The fiscal year 1990 priced option for the first 100 seekers (50 USN; 50 USAF) was awarded on 1 March 1990.

Question. At current production rates, did the Navy seriously review the current acquisition strategy?

Answer. Yes, the acquisition strategy was seriously reviewed. It will be revisited as part of our current reassessment for munitions based on the charging threat environment in light of world events.

Question. What is the prime's production capability? How much have the government and the prime invested in the production facility?

Answer. Texas Instrument's current production rates are 105/month minimum sustaining, 125/month normal (one shift, eight hours per day, five days per week), and 225/month maximum (3-8-6). The government has invested $181 million and TI has invested $173 million in the HARM production facility.

Question. How much has been invested in developing the Low Cost Seeker?

Answer. The government has invested $244 million and Ford has invested $15 million in developing the Low Cost Seeker.

Question. When do you estimate the cost to develop the Low Cost Seeker was or will be recouped in savings due to competition and threat of competition?

Answer. The break-even point could be reached in fiscal year 1998, assuming current procurement projections.

Question. Has the Navy decision not to proceed with TACIT RAINBOW changed HARM inventory objective or procurement requests in any way?

Answer. No, it has not.

Question. How seriously is the Navy reviewing its decision not to continue with TACIT RAINBOW?

Answer. There are no funds for TACIT RAINBOW in this budget submission. In the context of future budgetary decisions, that process is on-going, and it is premature to comment on that process.

TACTICAL AIR LAUNCHED DECOY (TALD)

Question. Last year the Congress authorized and appropriated $25 million for the tactical air launched decoy program. Although the funds were unbudgeted, certain Navy sources had indicated that the requirement was valid and only fiscal constraints had precluded the Navy from putting money in the budget.

Did the Navy identify the TALD monies as a reprogramming source?

Answer. Yes, the Navy identified TALD monies as a reprogramming source based on inventory levels being above our programming requirements.

Question. Of the $25 million appropriated, $8 million remains in the TALD line, is that correct? What are the Navy's plans for these funds?

Answer. The remaining funds are available to procure additional TALDs should the on-going reassessment of munitions requirements dictated by the changing threat environment indicate that additional TALDs are required.

Question. Assuming at least one Congressional Defense Committee rejects TALD as a source of funds, will the Navy proceed to execute the 1990 program as envisioned by the Congress?

Answer. The $25 million appropriated in fiscal year 1990 was in excess of program requirements. That fact would make execution of the 1990 program subject to further review.

Question. What is the status of the development of the improved TALD, or ITALD?

Answer. The Navy effort to develop an improved TALD is currently not funded.

[CLERK'S NOTE.—End of questions submitted by Mr. Wilson.]

Mr. MURTHA. We have questions from Mr. Dicks for the record also.

[CLERK'S NOTE.—Questions submitted by Mr. Dicks and the answers thereto follow:]

SPS-48E RADAR

Question. Admiral Milligan, last year the Committee provided $39 million for the procurement of three SPS-48E radars for aircraft carriers. This action was a recognition of the Committee's support for the Navy's New Threat Upgrade program for its most valued combatants. Could you tell us for the record which carriers will receive these three systems, based on our current planning?

Answer. Money provided last fiscal year will procure two SPS-48E radar vice three since the radar unit cost for three radars is greater than $13 million. We plan to install these AN/SPS-48E radars on U.S.S. *Nimitz* (CVN 68) and U.S.S. *Theodore Roosevelt* (CVN 71).

Question. Navy has previously procured four SPS-48E systems for its carriers; in FY 1990 there were three more provided by the Congress. I understand that in recent testimony before the House Armed Services Committee that the Navy supported the installation of the 48E on the remaining five aircraft carriers. It was also expressed that some economy could be affected by buying the remaining systems over the next few years vs. stretching out the procurement. We understand that Navy has looked into a buy-out of the remaining SPS-48E requirements.

Could you tell us the cost and the potential savings available for buying out the remaining five systems in fiscal year 1991 vs. a long installation driven profile.

Answer. Since the fiscal year 1991 President's Budget does not reflect the procurement of any OPN funded SPS-48E radars, specific cost details on the procurement of five systems are not available. However, based upon recent estimates by ITT Gilfillan, approximately $73 million would be saved by procuring five systems in one year vice one system per year for five years.

Question. One intent of last year's funding was to acquire the longest lead portion of the New Threat Upgrade system from which one might extract the largest savings via multiple unit procurement. Could you provide for the record the SPS-48E unit costs for 1, 2, 3, 4, and 5 systems based on fiscal year 1990 estimates, to demonstrate the economic impact of our fiscal year 1990 funding of multiple systems.

Answer. The ITT Gilfillan proposal for procurement of AN/SPS-48E radars for carriers was received in NAVSEA in late March, 1990. The proposal supported three SPS-48E procurement quantities: (one SCN/LHD-5 and two OPN/CVN radars) with additional unsupported estimates for four radars and five radars. No estimate was provided for two radars. Proposed costs (unnegotiated) are as follows ($M):

Quantity:	*Unit cost*
1	29.56
3	16.63
4	16.02
5	14.82

[CLERK'S NOTE.—End of questions submitted by Mr. Dicks.]

Mr. MURTHA. We will have other question for the record. The Committee will adjourn until 2:00 o'clock tomorrow.

Admiral MILLIGAN. Thank you, Mr. Chairman.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

MK-50 TORPEDO

Question. The 1991 budget includes $328.3 million to procure 265 MK-50 lightweight torpedoes. TECHEVAL for the MK-50 was conducted this spring. What were the MK-50 TECHEVAL results, both for uncountered and countered targets? How do they compare with the requirements

Answer. The originally planned TECHEVAl test matrix ——— has been successfully completed with the exception of a warshot demonstration run to be conducted in May 1990. Results are as follows. ———.

Question. The Committee understands that the torpedo's terminal homing performance was less than expected. What was hoped for, what was experienced, and how serious do you feel the problem is?

Answer. ———.

Question. The DOD Inspector General has recommended that there be no full rate production decision until the MK-50 is tested against an operationally realistic fast deep target. What is the current schedule for IAB IIIB decision and how much would it be delayed if the IG's recommendation is implemented?

Answer. Milestone IIIB (Full Rate Production) is scheduled for April 1991. ———.

Question. What does the Navy intend to do regarding the IG's recommendation?

Answer. The Navy intends to proceed with milestone IIIB, and conduct fast deep prototype testing as FOT&E ———. Testing data to date provides full confidence that the MK-50 torpedo is effective against the fast and deep threat. Further testing using the fast deep prototype target in FOT&E will validate an already demonstrated capability. ———.

Question. At the current levels, (265 in 1991, 465 in 1992, 732 in 1993) and production rates (minimum rates of 480 per year for each producer), do two sources for this program continue to make sense?

Answer. Competitive dual sourcing makes sense as long as the combined dual source procurement is less costly than projected sole source costs. Additionally, we have not fully ramped up to the full tooled rate of ———. The current tooled rate is 288 torpedoes per year for each. We are reviewing the MK-50 torpedo program in POM-92 and will ensure that future production plans support the Navy's war fighting requirement and make good economic sense.

Question. What is the status of the second source? When will the first production torpedoes be delivered? What has been the cost to develop the second source?

Answer. Westinghouse, the second source, is completing the familiarization program which began May 1987. To date, approximately 33 of 40 technology transfer sessions have been completed; Westinghouse has successfully assembled hardware kits provided by Honeywell; and Westinghouse completed several technical reviews/audits. The first of 10 qualification torpedoes which will undergo Navy testing are expected by September 1990, and the first of 64 fleet torpedoes are expected by February 1991 under the LRIP 1 contract, which is on-schedule. Westinghouse is also under contract for 100 fleet torpedoes under the LRIP 2 contract with deliveries starting in September 1991. The cost to bring Westinghouse into the program as second source was $55.8 million. The tasks involved were technology transfer (both contractors), fabrication kits (to develop build processes), system test sets, Westinghouse qualification torpedoes and Government testing of deliverables.

AMRAAM MISSILE

Question. The Air Force AMRAAM program has experienced many problems in the last two years which have resulted in continued low rate production. A Defense Acquisition Board full rate production decision is currently scheduled for May 1990.

Is the Navy convinced that AMRAAM is robust enough to withstand the environment on the F/A-18 and F-14?

Answer. Extensive flight measurements, using an AMRAAM Inertial Measurement Vehicle, in the F/A environment have been conducted at the Navy's Missile Test Center. The F-15 flight reliability program. Additionally, a review of catapult and arrested landing data indicates that the missile experiences a less severe environment than that recorded during and in flight buffet condition. Since the F/A-18 AMRAAM environment is more severe than the F-14, the Navy currently believes that the AMRAAM is "robust" enough to withstand the Navy flight environment. Verification and operational testing during 1990 and 1991 is planned to validate those projections.

Question. Based on esclating costs and reliability issues, its current inventory goal of ——— AMRAAMS?

Answer. Inventory requirements are revisited with each budget submittal. Cost, reliability, aircraft compatibility, planned upgrades, and changes in the world threat base are among the issues that determine the Navy's programming objective for each air-to-air missile. The planned procurement goal of ———. AMRAAM is valid for the fiscal year 1991 budget submission and will be revisited each subsequent year.

ROLLING AIRFRAME MISSILE

Question. Last year this Committee recommended keeping the rolling airframe missile at low rate production for an additional year. Although we receded to the Senate in conference, the 1991 budget request appears to support our original position. What sense does it make to go from production of 260 in 1989 to 580 in 1990 to 405 in 1991? Wouldn't a more uniform production rate result in greater efficiencies and fewer perturbations?

Answer. The U.S. missile production rate profile is 500 for the combined fiscal year 1988/1989 program which will be delivered over a 12 month period. Fiscal year 1990 quantity is 580 missiles also delivered over 12 months. The fiscal year 1991 quantity of 405 represents 9 months of delivery. Since the second producer (RAMSYS) will start deliveries 3 months later than the first producer (General Dynamics), a nine month buy in fiscal year 1991 will allow the two producers to align their future delivery schedules without a break in production.

Question. Have recent developments in central and eastern Europe altered the Federal Republic of Germany's involvement or attitudes toward this program?

How many missiles does the FRG plan to buy in 1990 and 1991? Has there been a change in their estimates since last year?

Answer. Nothing has changed in the German government's support for the program. Germany will order 400 missiles in fiscal year 1990 and 450 missiles in fiscal year 1991. These numbers are unchanged from last year.

Question. The Director of Operational Test and Evaluation disapproved the Test and Evaluation Master Plan submitted by the Navy primarily due to the "nebulous description of the anti-ship cruise missile threats which the RAM system is intended to counter". How has this issue been resolved?

Answer. The revised RAM TEMP was approved on 2 January 1990. The basic TEMP contains only information that is releasable to the German government. The CNO, Commander Operation Test and Evaluation Force, and Commander Naval Sea Systems Command added the requested detail to the threat list and included it in a secret Annex A (not releaseable to Germany) to the RAM TEMP.

Question. What is the latest schedule for OPEVAL and 1990 contract award date?

Answer. The last OPEVAL firing event was completed on 5 April 1990. The completion of the test report by COMOPTEVFOR is anticipated during July 1990. The 1990 contract award date continues to be scheduled for August 1990.

STANDARD MISSILE

Question. In fiscal year 1990, the Congress appropriated $390 million to procure 940 Standard missiles. The Navy has advised that it will not be able to procure nearly that many. How many will you be able to buy and what accounts for the shortfall?

Answer. In fiscal year 1990, the Congress added $79.8 million, for an additional 350 missiles at an average unit cost of $228,000, to the requested $310.6 million for 590 missiles which were priced at an average unit cost of $526,000. The composite average unit cost for the 940 missiles is $415,000 and reflects a very aggressive 21 percent pricing strategy savings based on a 59 percent increase in quantity. Since the Navy has yet to receive contractor bids for the 940 missiles, it is premature to estimate the quantity that the Navy will buy.

Question. The minimum economic rate of each of the two producers is 100 per month, or more than sufficient to produce the entire budget request. Based on uneconomical rates for two producers, is the Navy reviewing its acquisition strategy?

Answer. In fiscal year 1991, the budget requests a production rate for two producers, which includes a competitively negotiated fixed price option for SM-2 Block IV procurement.

Question. Most of the 1991 request is for the new AEGIS Block IV STANDARD missile which is considerably more expensive than earlier versions.

Explain the differences in cost and capability of the Block III versions with Block IV.

Answer. The SM-2 Block IV is a new generation STANDARD Missile which incorporates a new booster (MK 72) and associated guidance, control and airframe (GC&A) changes to provide AEGIS ships with very high altitude and extended range AAW capability. In fiscal year 1991 the SM-2 Block IV price, for the new boosters and GC&A, is a fixed price option based on competitive bidding for the Block IV development contract.

Increased Block IV cost in 1991, over the Block III, is also attributed to the new ordnance/warhead section which is common with that in SM-2 Block IIIA. ———. Additionally, the SM-2 MR/ER production quantities requested for 1991 do not include SM-2 Block IIIB missiles which are being developed under the Missile Homing Improvement Program (MHIP).

Question. OSD's Operational Test Office disapproved an earlier Standard Missile Test and Evaluation Master Plan (TEMP) because of excessive concurrency for the Block IIIB version with no operational testing performed before beginning low rate initial production.

Does the current schedule and TEMP meet the objections raised by the OSD operational testers?

Answer. Subsequent to TEMP disapproval, the schedule for SM-2 Block IIIB development, which contains an acceptable degree of concurrency, was reviewed and approved by OSD's Conventional Systems Committee (CSC) as part of the Missile Homing Improvement Program (MHIP). The TEMP is now being revised to address OSD's operational testing concerns with regard to supporting the low rate initial production decision.

Additionally, to reduce financial risks Block IIIB kits are being procured under the Standard missile modification program. ———.

PHOENIX MISSILE

Question. Despite widespread congressional opposition, the Administration has kept with its plan to terminate the Phoenix missile after the 1990 buy and has included no funds in the 1991 budget.

What is the Phoenix inventory objective and what will be the maximum number of missiles in the inventory?

Answer. The OSD-determined goal is ——— and our maximum inventory of AIM-54C missiles is projected to be ———.

Question. Last year the Congress provided $323.3 million for 420 missiles and provided none of the $50 million requested for termination costs. How has the Navy been able to buy 420 missiles and terminate the program for only $323 million?

Answer. Awarding the total 420 missile buy to a single contractor in a winner-take-all competition resulted in a $34 million savings which was applied to cover most of the production, engineering and logistics support efforts over the fiscal years 90/91/92 period which are necessary to support this last procurement of missiles but which were underfunded as a result of last year's $50 million reduction. As noted in our appeal last year, the $50 million was budgeted for production support items required until the deliveries and acceptance of the last buy was completed. These were not separate costs for line closings which could be withdrawn in the event the decision was made not to stop production (no such costs exist), but were required costs brought forward in the last year which otherwise would have been financed in a subsequent year. The Navy still has to make decisions about what it cannot do for the $16 million difference between the reduction and the savings.

Question. Last year the Navy indicated the backlog caused by faulty FSU-10A fuzes would be eliminated by December 1989. That was not achieved. Why wasn't it, what is the current backlog, and what is your latest estimate of when it will be eliminated?

Answer. The Defense Contract Administration Services Plant Representative Office (DCASPRO) issued a method "D" stop work order to Micronics, based on the unacceptable quality of their fuzes. Micronics subsequently filed bankruptcy and the entire production was halted. As an interim measure, 533 AIM-54C/C+ missiles have been made operational with alternate fuzes from AIM-54A missile inventory. The total backlog of AIM-54C+ awaiting fuzes from field returned AIM-54A missiles is 294. Completion of retrofit is dependent upon the return schedule of deployed AIM-54As. Phoenix missile production contracts let in fiscal years 89/90 have FSU-10A fuzes as CFE. A second manufacturing source is currently being developed and should be ready to make deliveries beginning in September 1990.

VERTICAL LAUNCHED ASROC

Question. In 1989, $104 million was appropriated which, when combined with amounts made available earlier, was intended to procure 300 VLA systems as an interim measure pending development of Sea Lance. What are the results of the recent VLA system TECHEVAL, separately for the VLA missile and for the entire system including the MK-46 torpedo?

Answer. ———.

Question. What is the current status for OPEVAL and what are the reasons for the delay?

Answer. VLA OPEVAL was originally scheduled for the end of March 1990 off Southern California, however, ———. As a result we are attempting to move the test to Hawaii where water conditions are more favorable and test range capabilities are greater. Missiles have been delivered by the contractor and we are now awaiting assignment of fleet services to conduct the test.

Question. How much money does OSD currently have on hold?

Answer. OSD has $98.4 million on hold pending the successful completion of OPEVAL.

Question. Does the delay in getting the 1989 funds on contract mean that the Navy probably won't be able to buy 300 systems? What is your best guess for the number you will be able to buy?

Answer. It is estimated that we will be able to procure somewhere between 250 and 270 missiles, however, this has yet to be negotiated with the contractor.

TOMAHAWK MISSILE

Question. The President's budget proposes to terminate the Tomahawk program after the 1992 buy. What is the inventory objective and what will be the actual inventory after receipt of missiles funded through 1992?

Answer. ———.

Question. Do you intend to keep two producers through 1992?

Answer. Yes. McDonnell Douglas Missile Systems Company and General Dynamics/Convair will be invited to compete in 1992 for production of new missiles. In addition, both contractors also compete for contracts to provide depot maintenance for current and projected Tomahawk inventories and for contracts to install modifications to missiles such as the Block III upgrade to the conventional land attack Tomahawk variants.

Question. What are the total estimated savings in the Tomahawk program due to dual sourcing?

Answer. The total Tomahawk program cost (projected through completion of planned production) is $3.1 billion less than was projected in fiscal year 1980. Of that total cost reduction, $990 million is attributable to dual sourcing.

OVER-THE-HORIZON TARGETING (OTH–T)

Question. The 1989 report of the Director of Operational Test and Evaluation, in assessing the Over-the-Horizon detection, classification and targeting system, stated that "conclusions on operational effectiveness and operational suitability have been held in abeyance pending further evaluation of major deficiencies identified in detection, tracking, localization, targeting, information processing and reporting, command and control, interoperability, training, manpower, and human factors." This sounds serious. What is the Navy's assessment of the problems and the solution?

Answer. The Director of Operational Test and Evaluation (OPTEVFOR) assessment of the Navy's OTH–T capability was drawn from a January 1989 report of a 1988 CNO Project K310–5 OTH–T evaluation. The problems identified in this report could be attributed to a general lack of operator knowledge of applicable systems, unsatisfactory interoperability among the OTH-T federation of systems, and lack of adequate training for afloat staffs and operators. Since that time, numerous initiatives have significantly improved the Navy's ability to conduct OTH-T operations. Among these initiatives are:

An Interoperability Certification Group (ICG) has been established to test interoperability of newly introduced systems and ensure that they work as designed in the OTH-T architecture. Interoperability testing is being conducted at the Reconfigurable Land Based Test Bed (RBLT) established at NOSC in San Diego. All new systems or major software releases for OTCIXS/TADIXS or systems interfacing with OTCIXS/TADIXS will be successfully tested or have a CNO waiver before fleet introduction.

An OTH-T mini-continuum has been developed and incorporated into the ASUW Continuum Training Plan. This plan outlines training requirements for OTH-T operators. All OTH-T resource sponsors and Systems Command have been encouraged to incorporate these training requirements into their OTH-T programs. New nondevelopmental items and rapid prototype OTH-T systems must include training as a part of system developmental plans.

System Level Standards for OTH-T data communications, data base management, and correlation algorithm performance have been distributed. It promulgates message report format designed for transmission of contact data and operational narrative information. It additionally includes the Advanced Data and Digital Graphics Format (ADDGRAF) that handles graphic overlays and other tactically significant information.

Man-Machine Interface issues are being resolved at NOSC where a Human Interface Guideline is being developed as a reference for system design. It is being developed in concert with MMI Specifications for NCCS Afloat and provides system development with standard guidelines for system displays. It additionally defines display standards among the various OTH-T related consoles.

Dedicated OTH-T System Engineers have been provided to each Numbered Fleet Commander. These engineers have sailed with Battle Groups in both Fleets to provide systems level grooming, trouble shooting assistance, and ad hoc training on OTH-T systems. In addition, assistance has been provided to the Fleet Commanders to evaluate and quantify battle group performance in OTH-T.

A Joint OTH-T Program has been chartered by OSD in which the concept of Joint OTH-T will be thoroughly tested under a variety of operational conditions. The information obtained in the course of this program will help us chart our course in developing the next OTH-T system in concert with our sister services. The Navy OTH-T Program will be taking maximum advantage of concepts and working relationships fostered by this program to help improve Navy OTH-T systems.

OTH-T exercises conducted in both Fleets since the 1988 K310-5 have shown marked improvement in the Navy's ability to conduct Over-the-Horizon Targeting. The initiatives described will enable continued improvements in this area as OTH-T continues to develop.

SONOBUOYS

Question. Last year, Congress appropriated a $45 million increase over the budget for the procurement of sonobuoys. The total funding level for sonobuoys was $160 million. Congress increased the budget because testimony revealed that peacetime consumption was depleting war reserve assets. The fiscal year 1991 budget for sonobuoys is $71.5 million, less than half of the current level.

Was this reduction made for budgetary reasons or are your peacetime ASW operations decreasing because of changes in the threat?

Answer. Reductions were made primarily due to fiscal constraints. Sonobuoy procurement competes with all other Navy programs for scarce resources and while overall sonobuoy war reserve assets are decreasing, funding is insufficient to fully satisfy these as well as all other Navy requirements. The Department accepts the associated warfighting risks within the available fiscal resources.

Question. To what extent will the 1991 budget cause further drawdown in sonobuoy war reserve assets?

Answer. Based on approved FY 1990 Non-Combat Expenditure Allocation projections for FY 1990, FY 1991 and FY 1992, the FY 1991 budget will cause inventory reductions by the end of FY 1992 of 42 percent for the AN/SSQ-36, 16 percent for the AN/SSQ-53, 29 percent for the AN/SSQ-57, and 40 percent for the AN/SSQ-62.

Question. How has the submarine threat changed in the last year? What do you forecast for the future?

Answer. Submarine production remains a top priority and the Soviets continue to invest heavily in new undersea warfare technology. The number of combatant submarines launched in 1989 (nine) equals or exceeds totals for each year since 1982, and includes one AKULA, one VICTOR III, and one SIERRA class SSN, one TYPHOON (ending construction of this class) and one DELTA IV SSBN, and four KILO diesel submarines. This rate will probably ——— expected to be launched, indicating submarine construction has not suffered under perestroika. The submarine force is essential to fulfilling Soviet wartime strategic objectives, and I fully expect the Soviets will devote considerable resources to submarine production in the coming years, while—at the same time—continuing to scrap antiquated units unsuitable for modern combat. As the CINC of the Soviet Navy stated, "We consider both nuclear and diesel submarines * * * to be the main force of our fleet."

The Soviets have attempted to increase the survivability of their SSBN force for years by improving SSBN tactics, reducing SSBN noise levels, upgrading their communication suites, arming them with longer-ranged missiles, and improving the capabilities of general purpose naval forces to protect these units. These continued efforts have made the Soviet SSBN force a much more difficult and elusive target. In addition, the Soviets continue to modernize this force with improved missiles armed with much more deadly—and potentially hard target capable—missiles. The Soviet SSBN force is thus becoming an increasingly important component of Moscow's strategic triad and—while a START agreement would reduce the number of SSBNs ——— whose combat capabilities are less than those of the newer Soviet and U.S. attack submarines, but the overall quality of the SSN force will nonetheless be significantly improved over the force of today.

Advanced Soviet SSNs can also carry the SS-N-21 land attack cruise missile. Continued construction of AKULA, SIERRA and VICTOR III SSNs will add to the number of SS-N-21 capable units in the Soviet fleet. The supersonic SS-NX-24 is also possibly under development.

A good illustration of the growing capability and technological sophistication of the submarine force even in the face of dwindiing numbers is to compare a first generation Soviet SSGN (the ECHO II) with the latest SSGN platform (the OSCAR II). ———.

Soviet efforts to incorporate the latest technological advances on their submarines are expected to continue. Emphasis will remain on ASW platforms and on ASW technological advances. Research will continue on new technologies such as higher strength hull materials (new steels, titanium, and composites) to allow deeper depths and improved weapons effects resistance, increased power and drag reduction for higher speeds, and continued efforts to improve sound quieting. Diesel technology may include the introduction of an air independent propulsion system. The Soviets' vibrant acoustic and non-acoustic ASW R&D programs will continue. ———.

Question. Will the 1991 budget for sonobuoy procurement cause you to be less responsive to the threat than you have been in the past?

Answer. In order to meet the more sophisticated subsurface threat, sonobuoys are required in sufficient quantities to allow the fleet to train aircrews to a high state of ASW readiness. Preservation of Programming Objective levels within current budget controls will result in reductions to fleet training and operational allocations. The Department accepts the balance between associated warfighting risks and the available fiscal resources.

Question. To what extent will annual sonobuoy consumption be constrained by a shortage of sonobuoys during the fiscal year 1991 funded delivery period?

Answer. With FY 1991's budget, it can be assumed that FY 1991 sonobuoy expenditures will be constrained to 50-70 percent of what was expended in FY 1989. This will reduce sonobuoy assets for training, operations, and exercises.

Question. The Navy has successfully maintained a competitive production base for sonobuoys. What impact will the fiscal year 1991 funding level have on the production base and the ability to maintain competition?

Answer. The ability to maintain competition may be hindered under the FY 1991 funding level in that the AN/SSQ-36 and the AN/SSQ-57 sonobuoys, only one manufacturer could be sustained of the two current producers. For the AN/SSQ-53 and AN/SSQ-77, manufacturing capacity would decline from three to two firms.

Question. For the record, provide the procurement strategy for each type of sonobuoy for fiscal year 1991.

Answer. The procurement strategy for FY 1991 is provided below:

Sonobuoy type	Quntity—cost (millions)	Remarks
SSQ-36	12,600—$2.1	A winner-take-all between two producers (Sippican or Sparton of Canada).
SSQ-53D	115,000—$45.6	Minimum sustaining rates to Hermes, Sparton, and Magnavox (15,000, 48,000, 33,000) respectively. Possibility exists that only two manufacturers will be awarded contracts.
SSQ-62B	19,900—$23.8	Fiscal year 1991 is the second of a 3-year multi-year contract with Magnavox and Sparton. Magnavox 9,174 buoys—$10.1M, Sparton 10,691 buoys—$11.3M.
SUS	7,100—$1.8	Single source contract award to Sparton.

Question. Why are no VLAD Sonobuoys budgeted in fiscal year 1991?

Answer. The projected inventory position of the AN/SSQ-77A at the end of the FY 1991 funded delivery period was in excess of the established programming objective. This was primarily due to the fact that the Navy's Conventional Ammunition Integrated Management System recently uncovered 103,000 previously unrecorded stock assets.

Question. For the record, provide the annual consumption and annual procurement numbers by sonobuoy type for fiscal years 1988 to 1994 and explain the changes from data which was provided in last year's record.

Answer. The annual consumption and annual procurement numbers are provided as follows ———.

[Clerk's note.—Procurement is depicted in budget year. Procurement quantities are delivered into inventory in the following year.]

Consumption in fiscal years 1988 and 1989 are actual expenditures. Fiscal years 1990 and 1991 are projected consumption in accordance with the published FY 1990 Non-Combat Expenditure Allocation (NCEA). Last year's record utilized the FY 1989 NCEA rates which accounts for the change in FY 1990-91 annual consumption rates. Annual procurements have changed from last year's record due to the fact that there have been changes in the President's budget as well as projected funding from the last FYDP. The period beyond the budget year 1991 reflects internal DoD planning assumptions which have not undergone the same degree of budget scrutiny.

SONOBUOY WAR RESERVE REQUIREMENTS

Question. For the record, provide the war reserve requirements and actual war reserve asset posture for sonobuoys for fiscal year's 1988 to 1994 and explain the changes from data which was provided in last year's record.

Answer. The war reserve requirements and inventory positions are provided as follows: ———.

The inventories in FY 1988 and FY 1989 are actual year end assets on hand. The inventories in FY 1990 and FY 1991 are projected based on prior years assets, deliveries and NCEA consumption. Through first-in, first-out inventory management, assets are continually rotated rather than having an amount set aside as dedicated war reserves. The prior beyond the budget year 1991 reflects internal DoD planning assumptions which have not undergone the same degree of budget scrutiny.

TRANSFER OF FUNDS FROM O&M TO OTHER PROCUREMENT

Question. Last year the Congress added $2.9 billion to the Navy's Other Procurement account for the "Installation of Modernized Equipment." A significant portion of those were transferred from the Operations and Maintenance Account. What is the status of implementing this program in the Other Procurement, Navy account, as opposed to the Operations and Maintenance account?

Answer. The program is being executed in OPN for FY 1990 in two budget line items, "Installation of Modernization Equipment" and "Installation of Prior Year Equipment". "Installation of Modernization Equipment" funds are being executed in FY 1990 as planned in the Operation and Maintenance accounts. We are currently reviewing an execution plan for "Installation of Prior Year Equipment", and will execute funding as equipment delivers.

Question. What is the current level of funds obligated from this program?

Answer. Installation of Modernization Equipment is approximately 56 percent obligated. It is anticipated that the program will be fully obligated by the end of the fiscal year.

Question. Are the equipment acquisition schedules for this program in sync with the ship overhaul schedules?

Answer. The FY 1990 and prior year procurements will be installed in conjunction with ship maintenance availabilities, pierside availabilities, or alteration installation teams and are coordinated with the equipment acquisition schedules.

MODERNIZATION SUPPORT

Question. A total of $444.8 million is requested for Modernization Support. This request is a new line item which would provide funds for the Fleet Modernization program. As mentioned, this request is a new line item. In what account had these funds been requested in past years?

Answer. Funds were previously budgeted in the O&M, N and OM&N, R appropriations from which the Fleet Modernization function transferred to procurement in FY 1990.

Question. One aspect of this program is to provide for minor ship alterations both in and out of schedule availabilities. What is the funding level that is a ceiling for an alteration to be considered minor?

Answer. A ship installation which is not directly tied to a procurement end item is considered a minor alteration. Minor alterations are not tied to a specific dollar threshold or ceiling.

Question. What criteria did you use in developing the $444.8 million funding level for this line item?

Answer. This line item budgets for those ship alterations which are not directly tied to procurement of an end item. These include support for engineering and technical planning documentation; design services for design engineering; development of technical documentation; ship configuration documentation updates following installation of alterations, and minor ship alterations.

MOLDED CASE CIRCUIT BREAKER

Question. Molded case circuit breakers ensure reliable electrical power for electronics, weapons and other critical electrical power loads. The fiscal year 1990 Defense Appropriations Bill added $6,000,000 to the budget for this program.

What is the status of the molded case circuit breaker program?

Answer. The technical specifications have been prepared and these requirements are being prepared for a procurement request at this time.

Question. Provide for the record the total requirement for this program.

Answer. Requirements for molded case circuit breakers have not yet been established.

Question. Why are no funds requested for (this) fiscal year (for) this program?

Answer. No funds were requested because requirements have not yet been established.

FIRE FIGHTING EQUIPMENT

Question. $59.3 million, an increase of over $40 million from the current fiscal year, is requested for fire fighting equipment for fiscal year 1991. The justification book maintains that "lessons learned" from the STARK and shipboard fires "have emphasized the urgent need to upgrade features and design standards that contribute to survivability."

How many ships would be provided upgraded fire fighting equipments with the fiscal year 1991 program?

Answer. In fiscal year 1991, upgraded fire fighting equipment will be provided for 109 ships.

Question. As a matter of policy, are all ships in overhaul and modernization provided with the very latest in firefighting equipment as part of their overhaul?

Answer. Installation of firefighting systems and upgrades to these systems are high priority requirements of all Navy ships, whether new construction, undergoing an overhaul or other modernization availability. Such installations include HALON in machinery spaces, auxiliary spaces and pump rooms. Aqueous Film Forming Foam (AFFF) systems are installed on flight decks, hangar decks, weapons handling areas and bilges. These systems supplement the traditional seawater firemain systems which run throughout every ship.

Most of our ships have HALON installed in machinery spaces and AFFF installed on flight decks and hangar decks areas. Most of the current program consists of HALON installations in spaces such as pump and generator rooms and upgrades to AFFF systems previously installed.

We also procure and deliver improved firefighting equipment which does not require installation. For example, all Navy ships are outfited with at least one Naval Firefighter's Thermal Imager (NFTI), a hand-held infrared device which enables firefighters to "see" through smoke to detect hot spots and locate personnel. NFTI has been described as "invaluable" by our sailors who have used it. This type of equipment greatly increases our shipboard firefighting effectiveness at relatively low cost.

The FY 1991 OPN line request for Fire Fighting Equipment shows a large increase from previous years as a result of Congressional direction to include equipment installation costs as well as procurement costs in OPN funding. In prior DoD budget requests, this OPN line showed only procurement of equipment. Equipment installation, accomplished in the Fleet Modernization Program (FMP), was previously reflected in O&MN funding lines. $39.7 million of the increase in OPN Fire Fighting Equipment account for FY 1991 is comprised of the installation funding switch from O&MN to OPN.

Question. The Navy has 46 FF-1052 Class Frigates whose primary role in Anti-Submarine Warfare (ASW). These ships have a projected 30 year life cycle. Last year the fiscal year 1990 Defense Appropriations Conference report noted that a recently completed Navy study indicated a requirement ———.

Answer. A copy of that study follows:

[CLERK'S NOTE.—The classified study was removed.]

Question. What is the projected per-ship cost of upgrading the FF-1052 class frigates?

Answer. $41 million per ship.

Question. The committee is advised that the equipment needed to upgrade these frigates has bascially been developed. Does the Navy concur with the view?

Answer. Yes, the equipment for the upgrades is developed.

Question. What is the current disposition of these ships in terms of the number in the active force vis a vis the number in the reserves?

Answer. There are currently 36 FF-1052's active and 10 in the Naval Reserve Force.

Question. What, if any, plans are underway to transfer more of these FF-1052 Class Frigates to the reserves?

Answer. Two additional FF-1052's will transfer in September 1990. Six FF-1052's are approved for transfer in FY 1991. Transfers in FY 1992 and FY 1993 are being reviewed.

[CLERK'S NOTE.—End of questions submitted for the record.]

WEDNESDAY, APRIL 25, 1990.

SHIPBUILDING AND CONVERSION, NAVY

WITNESSES

GERALD A. CANN, THE ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION

VICE ADM. JOHN W. NYQUIST, ASSISTANT CHIEF OF NAVAL OPERATIONS FOR SURFACE WARFARE

VICE ADM. DANIEL L. COOPER, ASSISTANT CHIEF OF NAVAL OPERATIONS FOR SUBMARINE WARFARE.

REAR ADM. WALTER H. CANTRELL, DEPUTY COMMANDER FOR SUBMARINES, NAVAL SEA SYSTEMS COMMAND

REAR ADM. JAMES R. LANG, DIRECTOR OF SHIP MAINTENANCE AND MODERNIZATION DIVISION

INTRODUCTION

Mr. DICKS. The committee will come to order.

This morning's hearing will be on the budget request for Navy shipbuilding and ship maintenance. We are pleased to welcome Mr. Gerald A. Cann, the Assistant Secretary of Navy for Research, Development, and Acquisition; Vice Admiral John W. Nyquist, Assistant Chief of Naval Operations for Surface Warfare; and Vice Admiral Daniel Cooper, Assistant Chief of Naval Operations for Submarine Warfare.

Mr. Secretary, your entire statement will appear in the record. If you will summarize your statement for us, we will then get to our questions. Admiral Nyquist, Admiral Cooper, if you would like to say anything after the Secretary, that would be fine.

SUMMARY STATEMENT OF MR. CANN

Mr. CANN. It is nice to be here, Mr. Dicks.

Thank you very much, and we are pleased to be here today to talk about our fiscal year 1991 ship construction and overhaul budget.

First of all, I will make a summary statement. In addition to Admiral Nyquist and Admiral Cooper, I have Rear Admiral Cantrell, Deputy Commander for Submarines, Naval Sea Systems Command, here with me.

I had planned to have Admiral Hekman here, but he is ill. I have asked James R. Lang, Director of Ship Maintenance and Modernization Division, to be here, because of his role in the logistics and overhaul area.

They will support me in this discussion.

Mr. DICKS. I hope Admiral Hekman isn't ill because he has seen the budget numbers.

Mr. **Cann**. That probably had something to do with it. The Navy's budget request for 1991 ship construction is $11.195 billion and that gives us resources for 15 new ships and 22 craft.

The maintenance, overhaul and modernization request is $3.531 billion. There are over 13 overhauls——

Mr. **Dicks**. What is that compared to last year just out of curiosity?

Mr. **Cann**. I am not sure I know. We will get the answer.

[The information follows:]

The FY 1990 estimate for the ship maintenance program contained in the FY 1991 President's Budget is $4,152.9 million, which includes 19 overhauls, 110 Selected Restricted Availabilities, and 64 Phased Maintenance Availabilities.

STATUTE OF LIMITATIONS ON CLAIMS

Mr. **Cann**. For fiscal year 1991, we are planning 13 overhauls, 90 Selected Restricted Availabilities and 45 Phased Maintenance Availabilities. In the shipbuilding industry, we employ 97 percent of the labor actively involved in the shipbuilding base and 56 percent of the ship repair direct labor in this country.

One other issue which has been of interest to the committee has to do with the statute of limitations on shipbuilding claims.

I want to make sure everybody knows what we are trying to do about that issue. The 18-month statute of limitations on shipbuilding claims prohibits the Secretary of any military department from making a price adjustment to a shipbuilding contract for an event occurring more than 18 months prior to submission of the claim.

The Navy announced a draft acquisition procedure and put it in the Federal Register in November 1989 with a 60-day period for public comment. We extended it at the industry request.

We have received a number of comments, and I intend to republish them in the Federal Register before we do something with it.

Mr. **Dicks**. Tell us what this means. What are you trying to accomplish here?

What is the policy underpinning for this change in the statute of limitations?

Mr. **Cann**. What I am trying to do is, first of all, make sure that we have a clear understanding inside the building and also with the industry as to exactly how we are going to operate and define an event so that the question is at what juncture does the claim become relevant or not relevant.

There has been a lot of discussion about it. There are a lot of detailed issues. I am not prepared today to discuss it in detail, but I am trying to assure you that before it becomes a firm directive, we are going to go back through the process of putting it into the Federal Register so I can have a discussion with the shipbuilding industry to make sure we have a clear understanding.

Mr. **Dicks**. What was put in the Federal Register?

Mr. **Cann**. A proposed version of this. I don't have the details here with me.

Mr. **Dicks**. Mr. Secretary, you must be able to explain what you put in the register. What did you put in the register on the statute of limitations?

Mr. **Cann**. I don't want to be evasive.

Mr. **Dicks**. You put it in the register.

Mr. **Cann**. I can't explain it, because I went through——

Mr. **Dicks**. Did somebody else put it in the register?

Mr. **Cann**. I did not. I wasn't here.

Mr. **Dicks**. Is there anybody here who can explain it?

Mr. **Cann**. I will get you the details and provide them.

I have got the details; I just don't have them here.

[The information follows:]

As indicated above, the Navy published proposed rules in the Federal Register to implement 10 U.S.C. Sec. 2405. These proposed rules were published at this time because language contained in the reports of the FY 1990 DOD Authorization Act, from both the House and Senate Armed Services Committees, directed the Navy to issue these rules.

The proposed rules do not change the Navy's prior interpretation or application of the statute; rather, the rules formalize our implementation of the statute. In this regard, the proposed rules contain definitions of the key words used in the statute, set forth the Navy's interpretation of the application of the statute to specified matters, such as defective government furnished equipment, identify when the 18 month period starts for each of these specified matters, describe the required certification and address the required submission of the supporting data. In addition, the proposed rules contain the provisions which would be included in future shipbuilding solicitations and contracts.

As I indicated above, we received comments on this proposed rule. These comments have been considered and revisions have been made to the initial proposed rule previously published in the Federal Register. These revisions are being incorporated into a revised proposed rule which will be republished in the Federal Register. An additional period for public comment and a hearing will be provided to all interested parties.

Our goals in this process are to ensure the timely submission of claims, requests for equitable adjustments and demands for payment so that the Navy can evaluate and resolve problems in a timely manner and to ensure that Navy shipbuilding programs are maintained on a pay-as-you-go basis. Requiring the submission of these matters within the specified 18 month period will enhance our ability to evaluate and resolve these matters and avoid a recurrence of the massive claims situation which confronted the Navy in the 1970s.

Mr. **Cann**. The point is that I want to make sure that we come out with something that people are going to have a good understanding of what we are doing and why and that there is——

Mr. **Dicks**. I think that is important, and apparently needs to be done. You ought to get together and discuss it yourselves before you raise it here in the committee and not be able to describe it.

I don't understand that. Go ahead.

Mr. **Cann**. Well, as a matter of fact, that was the only point that I really wanted to make out of the statement. It probably wasn't the right point, obviously.

At this time, Admiral Nyquist would like to make a couple of points representing the Chief Naval Operations and the requirements point of view.

[The statement of Mr. Cann follows:]

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
HOUSE APPROPRIATIONS COMMITTEE
DEFENSE SUBCOMMITTEE

STATEMENT OF

GERALD A. CANN

ASSISTANT SECRETARY OF THE NAVY

(RESEARCH, DEVELOPMENT AND ACQUISITION)

BEFORE THE

SUBCOMMITTEE ON DEFENSE

OF THE HOUSE APPROPRIATIONS COMMITTEE

ON

SHIPBUILDING AND OVERHAULS

APRIL 25, 1990

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
HOUSE APPROPRIATIONS COMMITTEE
DEFENSE SUBCOMMITTEE

GERALD A. CANN
Assistant Secretary of the Navy
for Research, Development and Acquisition

On 12 March 1990, Mr. Gerald A. Cann was sworn in as the first Assistant Secretary of the Navy for Research, Development, and Acquisition. He is responsible for all acquisition policy and procedure and all research, development, production, shipbuilding, and logistics support programs within the Department of the Navy.

Mr. Cann graduated from New York University in 1953 with a Bachelor of Science degree in Geology/Geophysics. He served two years in the US Army Signal Corps before joining the American Machine and Foundry Company where he served as TITAN I Test Manager and as Deputy Engineering Manager for the TITAN I Division.

In 1965, Mr. Cann joined TRW Systems, Inc. where he specialized in providing analyses and consulting services to the US Navy on anti-submarine warfare (ASW) systems. As a Program Manager, he conducted major aircraft reviews for the Navy on Surface Ship Sonar and other systems. He managed the Undersea Surveillance program and provided technical support to the ASW Project Office and to the Office of the Chief of Naval Operations.

In 1970, Mr. Cann joined the Office of the Secretary of Defense as Staff Assistant for Ocean Surveillance and subsequently served as the Assistant Director for Ocean Control.

In 1977, Mr. Cann was assigned to the staff of the Secretary of the Navy as the Deputy Assistant for Systems. From 1979 through 1985, Mr. Cann served as the Principal Deputy Assistant Secretary of the Navy (Research, Engineering, and Systems) where he assisted the Assistant Secretary on all matters pertaining to Navy and Marine Corps research, development, test, and evaluation.

For the next two years, Mr. Cann established a private consulting firm and provided advice on long-range planning, allocations of independent research and development funds, congressional strategy, and teaming philosophy. His firm also specialized in the technical support for anti-submarine warfare, undersea, and air defense programs. Immediately preceding his appointment as the Assistant Secretary of the Navy, Mr. Cann served as the Vice President of the Undersea Warfare Center, General Dynamics Corporation.

Mr. Cann has been active in numerous committees sponsored by both government and industry, including the Defense Science Board, Naval Research Advisory Committee, National Academy of Sciences, Chief of Naval Operations Executive Panel, and the American Defense Preparedness Association.

During his distinguished career in both government and private sectors, Mr. Cann has been recognized through the award of the Defense Meritorious Service Medal, the Navy Distinguished Civilian Service Medal, and the National Security Industrial Association Charles Weakley Award. In 1980, he was presented with the Distinguished Executive Award by the President of the United States.

Good morning Mr. Chairman, and distinguished members of the Subcommittee. I appreciate this opportunity to appear before you and discuss the Navy's Shipbuilding and Overhaul program. To assist me in answering your requirements related questions, I have with me VADM John W. Nyquist, Assistant Chief of Naval Operations (Surface Warfare), VADM Daniel L. Cooper, Assistant Chief of Naval Operations (Undersea Warfare), and VADM Peter M. Hekman, Jr., Commander Naval Sea Systems Command.

FY 1991 BUDGET SUMMARY

The Navy's budget request for FY 1991 Ship Construction is $11,195.2 Million. This represents resources for 15 new ships and 22 craft. The budget request for the FY 1991 Ship Maintenance and Modernization is $3,531.5M. This is for 13 overhauls, 90 SRA's and 45 PMA's. Ship overhaul backlog in FY 1991 contains 2 hulls backlogged due to lack of repair funding, including 1 reclassified Depot Modernization Period. A list of these ships and craft and detailed descriptions of our programs are contained in our budget justification material which you have already received.

Shipbuilding Industry

All Americans share a concern about the overall competitive capability of our nation's industrial infrastructure. Navy shipbuilding programs continue to employ approximately 97% of the direct labor involved in the active shipbuilding base and approximately 56% of ship repair direct labor. There is excess capacity in the U.S. shipbuilding industry due to the lack of commercial orders. Navy execution of Congressional direction to establish public/private shipyard competition also served to maximize opportunity for ship repair companies throughout the nation. Navy shipbuilding and repair funding has been a catalyst for innovation in ship production process applications and materials development including both the shipyards and the supporting industries. The existing base can only be maintained through a combination of stable competitive Navy programs and commercial work. The FY 1991 Navy shipbuilding budget supports such a stable and competitive program.

However, shipyard availability is not the primary mobilization constraint. It is rather in the vendor base supplying the shipyards with materials and component systems that we face the most critical production mobilization constraints. This base has suffered due to the loss of commercial work from the private sector.

Beginning in the early 1980's, the Navy has made significant changes to its depot maintenance philosophy. We have shifted from major overhauls occurring every three years to one in which a major overhaul now occurs about every five years, with short maintenance intensive selected restricted availabilities (SRA's) occurring about every 18 months between overhauls.

As the Navy's maintenance strategies have evolved, the number of overhauls have decreased from a high of 77 in FY 1977 to the 13 planned in FY 1991. The net effect of our current maintenance strategy is a reduction in the number of overhauls, a significant increase in the number of shorter more frequent availabilities, and a net increase of operational availability as observed by Fleet Commanders. This philosophy has tended to reduce the work available for our naval shipyards and provided increased opportunities for the private sector.

The Navy is deeply concerned about the future utilization of naval shipyards. We have previously reported to Congress that workload for naval shipyards would decline in the early 1990s. Some of this decline is already apparent and will be more evident in 1991. However, if the current funding trends continue, employment will not return to current levels in the latter part of the decade as was previously anticipated. Force level changes could require substantial reduction in the public shipyard requirement. We will continue to monitor the situation and manage our public shipyards efficiently, making adjustments as necessary to support force levels and mobilization requirements.

Public/Private Ship Repair

The private sector currently performs 83 percent of Navy non-nuclear availabilities, the majority of which (73 percent of total availabilities) are assigned to private/private competition. The remainder are competed public/private. With the exception of a few availabilities per year, the only non-nuclear surface ship availabilities which are not already a part of the Public/Private Competition (PPC) program are Amphibious Assault Ships (LHAs and LHDs), Battleships, and Aircraft Carriers. The exceptions are those availabilities which are performed at a naval shipyard because of lack of private dry-dock capacity in the home-port area, or to maintain a minimum workload. There is little or no additional surface ship work which can be competed. The FY 1991 repair program illustrates the lack of interest and competition in submarine repair. Of 13 availabilities, 5 availabilities were assigned to public yards as of 20 April 1990, with 6 more pending assignment to public yards because of a lack of private sector interest in submitting proposals to repair them. Only two availabilities are expected to be competed; however, recent market surveys indicate renewed interest in the 1991 scheduled work.

As the Navy work available to both the public and private sector decreases in the 1990s, we will need to monitor the competition process carefully to be sure it enhances both efficiency and maintenance of the industrial base. We have learned that competition between the public and private sectors is very difficult to structure such that it is viewed as being fair by all parties yet leads to efficient work execution.

Competition

I would like to share with you recent data from the Annual Navy Competition Advocate General Report to Congress on competition results for FY 1989. This report showed that the percentage of Navy procurement dollars competed was 60.6%. This impressive statistic marks a consistent seven-year improvement trend and a doubling of the dollars competed since the diminutive 26.7% achieved in FY 1982. Competition is now embedded in the Navy acquisition process and has brought the U. S. taxpayer and Navy personnel higher quality products at lower costs. It is in the interest of maintaining these competitive savings, in the face of smaller overall budgets, that we seek the committee's support for continued program stability in our subsequent budget requests. Clearly, as we proceed, we will find this more difficult in the future.

Concurrent Test and Production

Congress has recognized the uniqueness of shipbuilding by amending U.S.C. Title 10, adding Section 2400 entitled: "Low rate initial production of new systems." The amendment defines what constitutes low rate initial production in order to minimize the risk of concurrent procurement and testing of major Department of Defense acquisition programs. This amendment specifically recognizes shipbuilding and satellite programs as unique among all other DOD acquisitions. It defines shipbuilding low rate initial production as production of items at the minimum quantity and rate that preserves the mobilization production base. Of necessity, this includes the vendor base. Hundreds of millions of additional dollars would be required to complete new ship programs without this statutory recognition of the uniqueness of shipbuilding.

Statute of Limitations on Shipbuilding Claims

The 18-month statute of limitations on shipbuilding claims is codified by 10 U.S.C. 2405. The law prohibits the Secretary of any military department from making a price adjustment to a shipbuilding contract for an event occurring more than 18 months prior to submission of a claim, Request for Equitable Adjustment (REA), or demand for payment. The law also provides that a claim, REA, or demand for payment is considered to be submitted only if it is accompanied by supporting data and the required certification.

Draft Navy Acquisition Procedures Supplement (NAPS) regulations were published in the Federal Register in November

1989. Provision was made for a 60-day period for public comment. This period was extended at industry's request. Industry comments have now been received and are being reviewed. We plan to republish revised regulations which will show the disposition of all industry comments and provide an additional opportunity for industry to comment prior to their implementation.

Naval Shipbuilding

Currently, 103 Navy ships, consisting of 95 new construction, 7 conversions, and 1 SLEP (at a public yard), are under contract or construction. These ship construction programs and quantities are listed in the attached Table. During FY 1989, 20 new ships, 2 converted ships, and 1 activated ship were delivered. In FY 1990, 15 new ships and 1 conversion are scheduled for delivery. Of these, 8 new construction ships have been delivered.

TRIDENT Submarine

The 17th OHIO Class TRIDENT submarine, SSBN 742, was awarded to the Electric Boat Division of General Dynamics in October 1989. Currently, eight C-4 missile capable and two D-5 missile capable OHIO Class submarines have been delivered. The next ship, USS WEST VIRGINIA (SSBN 736), is scheduled to be delivered in September 1990.

SSN 688 Class Attack Submarine

The FY 1990 budget appropriated one SSN 688, which represents the last of the SSN 688 program. Through FY 1990, 62 SSN 688 Class submarines have been authorized, of which 43 have been delivered. The remaining 19 are planned for delivery by 1995. Under competitive procurement strategies, General Dynamics Electric Boat Division (EBDIV) has been awarded 33 submarines while Newport News Shipbuilding (NNS) has been awarded 29.

Since the first SSN 688 submarine construction contract was awarded in 1971, continual improvements in war-fighting capabilities have been incorporated resulting in the recently awarded submarines having dramatically greater war-fighting capabilities, including propulsion improvements, combat system upgrades and weapon delivery capabilities, when compared with the first submarines of the class. However, the capability to make the magnitude of improvement required to match the projected threat in the 21st century is not available, this necessitates the building of the SEAWOLF class.

SSN 21 SEAWOLF Class Attack Submarine

The SSN 21 SEAWOLF Class submarine is designed to counter the rapidly increasing capabilities of the Soviet submarine force projected for the late 1990s and beyond. SEAWOLF will be the world's foremost submarine: quiet, fast, and well-armed with advanced sensors, capable of deploying to forward ocean areas to search out and destroy enemy submarines and surface ships and to attack land targets.

The SEAWOLF program is over 7 years into a 13-year process toward delivery of the first ship. NNS is the lead yard for detail design. EBDIV is the propulsion plant design yard as well as being a major subcontractor to Newport News Shipbuilding for detail design. A contract for construction of the lead ship was competitively awarded to EBDIV in January 1989. Construction has begun. As requested in the conference report for the FY 1990 Appropriation Bill, we have requested a reprogramming to correct identified cost growth for the SEAWOLF. The cost growth is attributed to unanticipated labor rate escalation and material cost increases. It is absolutely vital that the requested funding be provided as quickly as possible to preclude costly lead ship construction delays and to fund lead ship obligations which were delayed.

Nuclear-Powered Aircraft Carrier Construction

USS ABRAHAM LINCOLN (CVN 72) was delivered in October 1989 two months in advance of contract delivery. Construction of GEORGE WASHINGTON (CVN 73) continues on schedule toward a July 1992 delivery.

The FY 1988 Appropriation Act included funding for two NIMITZ Class aircraft carriers: CVNs 74 and 75. A construction contract with Newport News Shipbuilding for CVNs 74 and 75 was executed in June 1988, with projected delivery dates of December 1995 and June 1998, respectively.

CG 47 Class Cruisers

The first ship of the class, USS TICONDEROGA, was appropriated in FY 1978 and was commissioned in January 1983. The last 5 ships of the 27-ship class (CGs 69-73) were appropriated in FY 1988. The final ship of the class is scheduled to complete in 1994.

Fifteen AEGIS cruisers have been commissioned to date. They are the worlds most capable AAW and ASW surface combatants and have operated successfully in all environments and in every ocean area in a variety of employments.

DDG 51 Class Destroyers

ARLEIGH BURKE (DDG 51) is the first ship of the second class of AEGIS warships authorized by Congress and currently under construction. DDG 51 is a multi-mission AEGIS-equipped Guided

Missile Destroyer whose mission requirements are to project power simultaneously in the four dimensions of Naval Warfare: Anti-Air, Strike, Anti-Submarine, and Anti-Surface. AEGIS-equipped DDG 51 Class ships will complement the CG 47 Class cruisers as part of the Carrier Battle Groups. The DDG 51 Class will also operate with Surface Action Groups, will deploy in support of Replenishment and Amphibious Groups, and be capable of independent operations.

The Navy's greatest ship inventory shortfall is in the area of battle force combatants; a shortfall exacerbated by the accelerated retirement of the DDG 2 and DDG 37 Classes, as well as the approaching retirement of aging conventional cruisers. The DDG 51 Class fulfills the need for battle force combatants while providing quantum improvements in war fighting and survivability over the ships this class replaces. Thirteen ships are under contract with Bath Iron Works and Ingalls Shipbuilding. A minimum of five ships per year is considered necessary to keep pace with retirements of older AAW destroyers and to maintain cost effective ship construction.

Last year, Congress approved a multi-year procurement strategy for 10 DDG 51 destroyers 5 each in FY 1990 and FY 1991. Our submission this year requests funding for five FY 1991 ships. The acquisition cost estimate for these five ships was reduced by a total of $125 million assuming a multi-year procurement would be executed. Based upon lack of demonstrated savings after receipt of the FY 1990 contract proposals, these 10 ships will be procured in two separate annual procurements. We are evaluating the impact of this decision.

LSD 41 Class Landing Ship Dock

LSD 41 Class ships are major components in our modernized marine amphibious capability. Of the eight LSD 41 Class ships awarded, four are in service and the remainder are in various stages of construction at Avondale Industries. Scheduled deliveries for the remaining ships continue through early 1991.

A contract for detail design and construction of LSD 49, the first of the Cargo Variant LSD(CV) ships, was competitively awarded to Avondale Industries in June 1988, with delivery scheduled for November 1993. This ship incorporates the same hull and propulsion plant as the first eight ships but includes interior arrangements which increase cargo capacity. The contract includes pre-priced options for four additional ships. The Navy exercised the option for LSD 50 in December 1989.

LHD 1 Class Amphibious Assault Ship

LHD 1 Class ships are the dominant component in our modernized Marine Corps amphibious assault capability.

Construction of the LHD 1 Class continues at Ingalls Shipbuilding. USS WASP (LHD 1) was delivered in May 1989, with deliveries of LHDs 2, 3, and 4 scheduled for April 1992, January 1993, and March 1994, respectively, all from Ingalls. The Navy plans to competitively procure LHD 5 and follow-on ships. Advance procurement funding for this ship was provided in FY 1990. Contract award for construction of LHD 5 is planned in FY 1991.

Landing Craft, Air Cushion (LCAC)

As of March 1990, 20 LCACs have been delivered and they are operating very successfully. FY 1990 contracts were awarded to Textron Marine Systems (TMS) (9 craft), and Avondale Gulf Marine (AGM) (3 craft). TMS acts as the Central Procurement Activity for major LCAC components. A promising demonstration of the capability of the LCAC to deploy, tow, and recover mine countermeasures equipment was successfully completed in June 1988. The FY 1988 SCN Appropriation provided $2.8 million for design of arctic-configured LCACs. We are currently reviewing improvements that enhance arctic capability.

MCM 1 Class Mine Countermeasures Ship

This is a 14-ship program for ocean-going minesweepers. USS AVENGER (MCM 1) has completed post-delivery testing and is an active fleet unit. Eight ships remain under contract with Peterson Builders, Inc., and two remain under contract with Marinette Marine Corporation. Three ships were delivered in CY 1989, and three more should be delivered in CY 1990. The new and very capable AN/SQQ-32 minehunting sonar has been installed in USS AVENGER.

MHC 51 Class Coastal Minehunter

This is a planned 17-ship program for glass reinforced plastic (GRP) coastal minehunters. The design is based on Italian GRP technology which was transferred to the lead shipbuilder (Intermarine USA, Savannah, Georgia) and is being transferred to the second source shipbuilder (Avondale Industries of New Orleans, Louisiana). Lead ship delivery is scheduled for January 1992. Three ships have been awarded; two to Intermarine and one to Avondale. These contractors will compete for the remaining 14 ships of the class.

AOE 6 Class Fast Combat Support Ship

The lead ship contract awarded to National Steel and Shipbuilding Company (NASSCO), San Diego, California, in January 1987 included options for three additional ships, one each in FY 1989, FY 1990 and FY 1991. With exercise of the option for the FY 1990 ship in December 1989, three ships are now under contract. We expect delivery for the lead ship in July 1991.

T-AO 187 Class Fleet Oiler

All seven ships of the third and final flight of Fleet Oilers have now been awarded to Avondale Industries. Two of the four second flight ships awarded to Pennsylvania Shipbuilding (Penn Ship) but not then begun, were assigned by Penn Ship to Avondale in June 1988. In August 1989, the Navy terminated the contract with Penn Ship and subsequently contracted with Tampa Shipyards, Inc. (Tampa Ship) for completion of the work on the remaining two ships.

T-AGOS 19 Class Ocean Surveillance Ship

In October 1986, the Navy awarded McDermott Shipbuilding, Morgan City, Louisiana, a contract for the detail design and construction of a T-AGOS SWATH (Small Waterplane Area Twin Hull). An option for three FY 1989 follow-on ships was exercised in October 1988. All four ships are scheduled for delivery between December 1990 and August 1992. This will complete the T-AGOS 19 Class procurement. The FY 1990 Appropriations Act provided transfer authority for $27.0 million to include SURTASS Block-Upgrade on the three FY 1989 ships.

T-AGOS 23 Class Ocean Surveillance Ship

T-AGOS 23 is the first of a new generation of SWATH T-AGOS ships. Like the SWATH T-AGOS 19 Class, T-AGOS 23 Class extends the operational envelope of SURTASS into the higher latitude sea areas. The T-AGOS 23 Class design will also include greatly expanded acoustic collection capabilities with the addition of a second acoustic system. This program has completed the contract design phase and is in the source selection process.

AO 177 (Jumbo) Class Fleet Oiler

This program involves addition of a 108-foot mid-body section to the existing AO-177 Class oilers to substantially increase cargo capacity. All five ships are to be converted by Avondale Industries in New Orleans. In accordance with the FY 1989 Congressional guidance, the Navy modified a contract to give the ships the capacity to carry ammunition in addition to more oil. All ships will be converted by August 1992.

Aircraft Carrier Service Life Extension Program (SLEP)

USS KITTY HAWK (CV 63), the fourth carrier to enter SCN funded SLEP, is currently in her 37-month industrial availability at Philadelphia Naval Shipyard, and is scheduled to complete in February 1991. USS CONSTELLATION (CV 64) is scheduled to commence SLEP at Philadelphia in July 1990.

CVN 65 Refueling and Overhaul

USS ENTERPRISE (CVN 65) is currently scheduled to start her refueling and modernization overhaul in January 1991, at Newport News Shipbuilding. A total of $1,422 million in SCN funding was provided in the FY 1990 appropriation. The USS ENTERPRISE was last refueled in 1970.

Pending Reprogramming Actions

There are two shipbuilding related reprogramming actions before the Congress. We have requested $178.8M for the lead SSN-21 (FY 1989) due to a basic construction contract award which reflects higher than anticipated labor and material charges. Also, $151.6M has been requested for the FY 1984, 1985 and 1988 SSN-688 programs, primarily to cover the Government's liability for target to ceiling coverage on the shipbuilding contracts. It is important that both of these reprogramming requests be addressed expeditiously since a portion of these funds are needed in order to satisfy near term requirements.

Summary

The Navy afloat forces of the future must have the flexibility to handle a broad range of threat scenarios. The third world threat is increasing as more highly-sophisticated modern weapons fall into the hands of many unstable government forces and of terrorist groups around the world. Constant vigilance and credible deterrence through strength is the price of peace.

As a new threat environment evolves, we must continue to upgrade our fleet capability with a combination of ship platforms able to counter a broad range of hostile environments if we as a nation are to maintain commitments to our allies. Continued emphasis on stable economic production plan funding and competition to ensure additional savings is going to be difficult to maintain.

SUMMARY STATEMENT OF ADMIRAL NYQUIST

Admiral NYQUIST. Mr. Chairman, and distinguished members of the subcommittee, it is my privilege today to take part in presenting the Navy's SCN budget request for fiscal year 1991. The ships in this plan will sustain and upgrade the capabilities of the Fleet into the next century.

For more than forty years, the members of this subcommittee have supported a national military strategy that has successfully underwritten worldwide security and stability. That investment is now bearing fruit with clearly positive developments throughout Eastern Europe.

The democratization of that part of the world appears to be moving at breakneck speed, but appearances aside, the Soviet Union remains a formidable military power. While it is true that the Soviets are scrapping older, obsolescent ships, so far the reductions are in "body fat", not "muscle". We must be cautious and determined that appearances are followed by actions and deeds.

Even under the most optimistic assumptions of decreased risk from the Communist Bloc, the potential dangers in the rest of the world, particularly the Third World, are increasing. To execute the U.S. Navy's missions of strategic deterrence, sea control, power projection and strategic sealift across the entire range of possible threats, we require quality, capable forces in the right numbers.

Our fiscal year 1991 SCN budget includes $11.2 billion for 15 new ships. The majority of the ships in this plan are force sustainers, not force builders, that is, they will be replacing older ships which have decreased capability to carry out their missions.

I will defer discussion of each of the ships in the SCN Plan until the question and answer period and welcome the added expertise of Vice Admiral Cooper to address our strategic and tactical submarine requirements. Mr. Chairman, that concludes my overview of the fiscal year 1991 SCN Budget Request. I urge your continued strong support of our vital shipbuilding program.

To answer your earlier question, Mr. Chairman, in fiscal year **1990, SCN plan was submitted for 17 ships and $11.019 billion. This year's request is for 15 ships at $11.195 billion.**

[The statements of Admiral Nyquist and Admiral Cooper follow:]

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HOUSE APPROPRIATIONS COMMITTEE

STATEMENT OF
VICE ADMIRAL JOHN W. NYQUIST, U. S. NAVY
ASSISTANT CHIEF OF NAVAL OPERATIONS
(SURFACE WARFARE)

BEFORE THE
SUBCOMMITTEE ON
DEFENSE
OF THE
HOUSE APPROPRIATIONS COMMITTEE

ON THE
FY 1991 SHIPBUILDING AND CONVERSION, NAVY BUDGET REQUEST
25 APRIL 1990

NOT FOR PUBLICATION UNTIL RELEASED BY
HOUSE APPROPRIATIONS COMMITTEE

VICE ADMIRAL JOHN W. NYQUIST, U. S. NAVY

Vice Admiral John W. Nyquist, son of the late Rear Admiral Walfrid Nyquist, USN (Retired) and Irma Beske Nyquist, was born in San Diego, California in 1933. He is a 1955 graduate of the United States Naval Academy.

At sea, Vice Admiral Nyquist has served in cruisers, destroyers and minesweepers including USS OZBOURN (DD 846), USS COCHRANE (DDG 21), USS HORNE (DLG 30) and USS PRIME (MSO 466). He commanded USS SEMMES (DDG 18) from 1973 to 1975 and Destroyer Squadron THIRTY-SIX from 1979 to 1981.

Vice Admiral Nyquist is a 1963 Ordnance Engineering graduate of the Naval Postgraduate School. Other assignments ashore have included the staff of Commander, Anti-Submarine Warfare Force, Pacific, the U.S. Military Assistance Command in Vietnam and various tours in the Bureau of Naval Personnel and the Office of the Chief of Naval Operations.

Following his flag selection in 1981, Vice Admiral Nyquist served two consecutive OPNAV tours, first as Director, Command and Control Support System and Information Systems Division and Director of Navy Automatic Data Processing Management under the Assistant Secretary of the Navy (Financial Management). During this tour, he participated in a major reorganization of Navy ADP management. In September 1982, he was ordered as Director, Surface Combat Systems Division which included duties as OPNAV sponsor of the ARLEIGH BURKE (DDG 51) shipbuilding program. During this period, the lead ship was authorized by Congress in the 1985 budget.

Returning to sea, Vice Admiral Nyquist took command of Cruiser-Destroyer Group FIVE homeported in San Diego, California in May 1985. During this tour, he commanded the USS CARL VINSON and USS KITTY HAWK Battle Groups. From September 1986 through October 1987, he served as Assistant Deputy Chief of Naval Operations (Surface Warfare). In November 1987, Vice Admiral Nyquist was assigned as Assistant Chief of Naval Operations (Surface Warfare). He was promoted to Vice Admiral in December 1987.

Vice Admiral Nyquist has been awarded the Legion of Merit with three gold stars, the Bronze Star, the Meritorious Service Medal, the Navy Commendation Medal with gold star and two Meritorious Unit Commendations. He is married to the former Penelope Ann Lyon of Menlo Park, California. The Nyquists have two children, Tom and Andrea.

SHIPBUILDING AND CONVERSION, NAVY (SCN)

Mr. Chairman and distinguished members of the committee, I am Vice Admiral John W. Nyquist, USN, the Assistant Chief of Naval Operations (Surface Warfare) and the sponsor for the Shipbuilding and Conversion, Navy (SCN) Appropriation.

It is my privilege today to present the Navy's SCN budget request for Fiscal Year 1991. The ships in this plan will sustain and upgrade the capabilities of the Fleet into the next century.

For more than forty years the national military strategy has successfully underwritten worldwide security and stability. That investment is now bearing fruit with the clearly positive developments throughout Eastern Europe. The democratization of that part of the world appears to be moving at breakneck speed, but appearances aside, the Soviet Union remains a formidable military power. We must be cautious and determined that appearances are followed by actions and deeds.

Under the best intelligence estimates we can gather, the USSR will still retain the world's largest military machine. Despite the Kremlin's preoccupation with domestic political and economic reform, modernization of this vast military arsenal will continue. Soviet Armed Forces will almost certainly be smaller in size -- but will inevitably be better. Fewer but more competent and motivated officers and enlisted personnel; fewer but more capable ships and submarines; fewer distant area naval operations but more realistic training in local waters -- these can produce a force very capable of accomplishing its missions. The question we must ask is whether the smaller but thoroughly modernized Soviet Navy of five years from now will be less capable or more capable of performing those missions. And we must not forget that, whatever the change in the Soviet political-military landscape, the USSR will remain the principal military threat, as it retains the potential, using nuclear weapons, to destroy the United States and our Allies.

As an example, and despite the USSR's escalating economic and social problems, the Soviet Navy had a year of growth in 1989 of which any Navy could be proud. Indeed, in terms of the construction of high-quality, high-technology submarines, surface ships and aircraft, as well as the further development and modernization of new weapons/electronic systems and shipyards, this was an outstanding year for Soviet naval power. It is true the Soviets are scrapping older, obsolescent units at an unprecedented rate, but so far the reductions are in "body fat" not "muscle." At the same time, they continue to modernize their shipbuilding infrastructure and yards, giving themselves future flexibility to construct either merchant or naval units as their national interests require.

But even given the most optimistic assumptions of decreased risk from the Communist Bloc, the potential dangers in the rest of the world, particularly the third world, are increasing. To execute the U.S. Navy's missions of strategic deterrence, sea control, power projection and strategic sealift across the entire range of possible threats, we require quality, capable forces in the right numbers.

VG-1

The ships which are included in our 1991 budget request have roles across the entire spectrum of conflict, from overseas presence during peacetime to general war. At the low end of the spectrum, our peacetime operations enhance deterrence worldwide, support U.S. diplomacy and policy, and provide for rapid response in a crisis. At the high end, our fleet ballistic missile submarines provide the threat of global nuclear response which forms the basic underpinning of our deterrent strategy.

VG-2

It is more important now than ever before to maintain the forward momentum of our shipbuilding program. Recent problems with overseas base rights have underscored the importance of a Fleet which can be sent any place on the globe to show the flag or project power. We must also be concerned that our shipbuilding industry is weakened and the industrial base is eroding. Our ability to rebuild a fleet in time of crisis is considerably diminished.

We expect to reach 551 ships by the end of FY 1990 as new ships already under construction replace aging, marginally capable units which are reaching the end of their useful service lives.

VG-3

In 1989, we took delivery of 21 new ships and two conversions. The new ships are listed on this slide.

FISCAL YEAR 1991 SCN BUDGET

Our FY 1991 SCN budget includes $11.19 billion for 15 new ships.

I will briefly describe each program for which we are requesting funding in FY 1991.

VG-4

STRATEGIC SUBMARINE FORCE

We presently have 34 strategic submarines, composed of 24 POSEIDON hulls and 10 OHIO class hulls. Of the 24 POSEIDONS, 12 carry the POSEIDON (C-3) missile and 12 carry the TRIDENT I (C-4) missile. Eight of the OHIO class submarines also carry the TRIDENT I (C-4) and two carry the new TRIDENT II (D-5) missile.

U.S. strategic forces (the TRIAD) provide deterrence to the Soviet Union, which continues to modernize its strategic offensive forces. Deterrence is best assured by having forces which are reliable, responsive, and survivable. The submarine launched ballistic missile (SLBM) is the only TRIAD weapon system possessing all three of these elements and therefore, it serves as the keystone to our national strategic posture. One hundred percent SSBN at sea survivability promotes crisis stability and long endurance provides for escalation control.

On a day-to-day basis, our strategic submarines, with their SLBM's, provide the most economical and single greatest deterrent to nuclear war. These submarines carry almost 50 percent of the strategic warheads in our country's inventory for only about 25 percent of the Department of Defense strategic budget.

OHIO Class TRIDENT Submarine

The TRIDENT submarine's overall capability and firepower is unmatched. Of the 17 OHIO Class TRIDENT submarines authorized, eight are making routine patrols from their Bangor, Washington base and two are preparing to patrol with the TRIDENT II (D-5) missile. The TRIDENT force has completed over 140 patrols to date.

The TENNESSEE (SSBN 734) is the first TRIDENT II (D-5) missile capable submarine. Seven TRIDENT submarines are presently under construction. USS PENNSYLVANIA (SSBN 735) was delivered on time and is conducting shakedown operations. The President's strategic modernization plan directs building one TRIDENT SSBN each year. All pre OHIO Class SSBNs will be retired in the 1990s. It is vital to maintain a minimum building rate of one TRIDENT per year to continue a credible, fully survivable SSBN force at sea into the next century. In the FY 91 budget we are requesting $1,244.6 million for the eighteenth ship plus $143.0 million for long lead material for the nineteenth and twentieth ships.

VG-5

ATTACK SUBMARINE FORCE

Recent Soviet announcements regarding submarine force level reductions must be considered in the context of how their overall force capability will change in the next decade. The Soviet plan to decommission their older SS and SSN classes will reduce their force numbers; however, it will do little to reduce their submarine force capability. In fact, these reductions, when coupled with their continued building rate of new submarines of significantly advanced classes, will produce an end-of-decade submarine force that is significantly more capable, although smaller in size.

There are currently 91 nuclear attack submarines and one conventional submarine in the U.S. Force. Of these, 42 are LOS ANGELES (SSN 688) Class submarines.

SEAWOLF (SSN 21) Class Submarine

The FY 1991 budget requests $2342.9 million for procurement of the second and third SSN-21s and $1139.1 million in advance procurement for the long leadtime nuclear propulsion plant and hull, mechanical and electrical equipment for follow on submarines of the SEAWOLF class. As directed by the FY 90 Appropriations Conference Report, a dynamic mission analysis for the SSN-21 at initial operational capability (IOC) date-plus-ten years (2005) was completed by the Office of the Secretary of Defense in January of this year.

Based on the results obtained from the dynamic mission analysis, the SSN-21 performance will be superior to the best estimate of the threat at IOC and at IOC-plus-ten years in every one of the eight representative attack submarine mission areas analyzed. The SSN-21 represents a revolutionary improvement in warfighting capability. From its inception,the SSN-21 has been designed to meet any threat and optimize its own inherent capabilities to conduct power projection missions in the 21st century.

VG-6

AIRCRAFT CARRIERS

Our aircraft carriers are deployed worldwide in support of our national commitments. They are capable of executing response options ranging from peacetime presence through general war. Together with their embarked air wings, the carriers have vital roles in strike, anti-surface, anti-air, and anti-submarine warfare across the full spectrum of conflict.

In FY 88, the Congress appropriated full funding for two NIMITZ Class nuclear aircraft carriers, CVN 74 and CVN 75. Two other CVNs were approved in FY 1983 and the first of these, USS ABRAHAM LINCOLN (CVN 72), joined the Fleet this past year.

VG-7

SURFACE COMBATANTS

We have made great strides in the past few years in improving the quality of our surface combatants, although fiscal constraints have precluded solving our numerical shortfalls. The soon-to-be introduced ARLEIGH BURKE (DDG-51) and the proven TICONDEROGA (CG-47) will form the backbone of the surface combatant fleet for the foreseeable future. Both carry the most advanced multi-threat combat systems afloat today, and can execute offensive and defensive missions independently or in conjunction with Carrier Battle Groups. The combination of HARPOON and TOMAHAWK has expanded the roles of our surface combatants, complicated enemy targeting, and significantly increased the Navy's offensive power. Anti-Air Warfare capable ship force levels represent our single greatest shortfall.

ARLEIGH BURKE (DDG 51) Class Guided Missile Destroyers

The ARLEIGH BURKE Class guided missile destroyer (DDG 51) is by far the most powerful, versatile, and survivable destroyer ever to go to sea. Combining the AEGIS anti-air warfare and SQQ-89 anti-submarine warfare combat systems with vertical launch cells carrying SM-2 surface-to-air STANDARD missiles, TOMAHAWK anti-ship and land-attack cruise missiles, HARPOON, the rapid-fire light-weight 5"/54 caliber gun, and close-in weapons, these ships provide unprecedented destroyer warfighting capability. The ARLEIGH BURKE class also features major advancements in survivability, including reduced radar cross-section, all steel construction with additional armored sheathing and the latest state-of-the-art damage control systems.

There are presently 13 DDG-51 Class destroyers appropriated and under contract. This ship replaces the aging DDG 2 and DDG 37 Class destroyers which are becoming obsolete and will be retired over the next three years. As the DDG 51 program continues, we will build additional destroyers to replace our older cruisers and to build toward our Battle Force Capable force level objective.

The FY 1991 budget includes $3,566.4 million full funding for the second group of five DDG 51s from FY-1990 multi-year procurement and $3.6 million for advance procurement.

AMPHIBIOUS WARFARE SHIPS

The primary factors in determining the amphibious force level and ship design are the Marine Corps' lift requirement and the ship to shore assets required to execute the landings.

Our goal is to lift the Assault Echelons of both a Marine Expeditionary Force and a Marine Expeditionary Brigade. The Assault Echelon includes the most critical assault elements needed to seize a beachhead and rapidly build up combat power ashore. These elements must be transported, landed and supported from specialized amphibious ships. The remainder of the landing force makes up the Assault Follow-on Echelon, comprised of the troops, equipment and supplies needed to support and sustain the initial assault. These follow on landing force elements are embarked in Military Sealift Command controlled fleet ships, which may be government owned and chartered or requisitioned from the private sector.

VG-8

WASP (LHD 1) Class Amphibious Assault Ships

Congress has fully funded 4 WASP Class Amphibious Assault ships to date. The FY 1991 request includes $959.8 million for construction of LHD 5.

VG-9

LSD 41 (Cargo Variant) Dock Landing Ship

Eight ships of this class are in building and the first of the Cargo Variant was funded in 1988. This year we are requesting $240 million to fund the third LSD 41 (Cargo Variant). This ship will transport and launch amphibious craft and vehicles with their crews and embarked personnel in amphibious assault operations. It will also provide limited docking and repair services for conventional landing craft and LCAC. These ships differ from the original LSD 41 in that they have additional cargo capacity and while carrying two fewer LCAC.

VG-10

Landing Craft Air Cushion (LCAC)

The FY 1991 budget includes $244.7 million for twelve of these modern landing craft and $23.2 million for advance procurement.

The LCAC is a fully amphibious air cushion vehicle capable of operating from existing and future well deck ships. It transports weapons systems, equipment, cargo and personnel of the assault elements of the Marine Air/Ground Task Force both from ship to shore and across the beach.

VG-11

MINE WARFARE SHIPS

For many years, our mine countermeasures capability was inadequate to meet the threat. We are now aggressively addressing that deficiency. We have established a minimum objective of 47 new mine countermeasures units which, in conjunction with our MCM helicopters, will have the mission of clearing U.S. waters and strategic choke points in time of war. The MHC 51 is a new class of ships designed to perform reconnaissance, classification and neutralization of moored and bottom mines in our harbors and coastal waters.

MHC 51 Class Coastal Mine Hunter

The lead ship of the MHC 51 Class was funded in the FY 1986 appropriation. The FY 1991 budget request includes $268.1 million for three follow on units.

VG-12

COMBAT LOGISTICS FORCES

Recent concerns over availability of overseas bases have underscored our dependence on these ships to keep our battle forces operating. Combat logistics force ships include multi-product station ships with the speed and armament to remain with the Carrier Battle Groups and single product shuttle ships to carry fuel, ordnance, stores and provisions from advance logistic bases or consolidation points at sea. The primary station ship is the AOE fast combat support ship. Shuttle ships include fleet oilers (AOs/TAOs), ammunition ships (AEs/TAEs), and stores ships (AFS/TAFS). In the event of non-availability of an AOE, one AOR and one AE may be assigned to a Battle Group.

AOE 6 Class Fast Combat Support Ship

In FY 1987 the Congress appropriated the funds for the lead ship of the AOE 6 Class. We plan to procure one of these ships for each Battle Group. The FY 1991 budget includes $398.2 million for one of these ships.

VG-13

OCEANOGRAPHIC SHIPS

We are continuing to address the block obsolescence of our 1960-vintage oceanographic ships. The T-AGS ship requested in the FY 91 SCN Program will be a replacement for ships that have exceeded their effective service life and are technologically inadequate for modern complex oceanographic operations. The replacement ships will be multi-mission capable -- performing ocean survey and data collection in support of fleet operations and systems development. The FY 1991 request includes $43.1 million for construction of one TAGS (coastal) oceanographic vessel.

OUTFITTING/POST DELIVERY

We are requesting $231.1 million in FY 1991 for outfitting. Outfitting funds purchase repair parts and consumables to fill initial ship allowances for ships approaching delivery.

The FY 1991 budget also includes $154.5 million for post delivery. Post delivery funds are used to pay for all work required to correct deficiencies identified during trials or post delivery.

Mr. Chairman, that concludes my overview of the FY 1991 SCN Budget Request. I appreciate this opportunity to appear before your committee to assist you in your deliberations on the Defense Appropriation Bill and urge your continued strong support for our shipbuilding program.

FY 1991
SHIPBUILDING AND CONVERSION, NAVY
BUDGET REQUEST
(IN MILLIONS OF DOLLARS)

	QTY	FULL FUNDING	ADV PROC	TOA
NEW CONSTRUCTION				
TRIDENT	1	1244.6	143.0	1387.6
SSN-21	2	2342.9	1139.1	3482.0
DDG-51	5	3566.4	3.6	3570.0
LHD-1	1	959.8		959.8
LSD-41 (CV)	1	240.0		240.0
MHC	3	268.1		268.1
AOE	1	398.2		398.2
OCEANOGRAPHIC RESEARCH	1	43.1		43.1
LCAC	(12)	244.7	23.2	267.9
CONVERSION/ACQUISITION/OTHER				
CV SLEP	-	113.1		113.1
OTHER COSTS	-	465.4		465.4
TOTAL SCN	15			11,195.2

SHIPBUILDING AND CONVERSION, NAVY
FY 1991/94 SHIPBUILDING PLAN

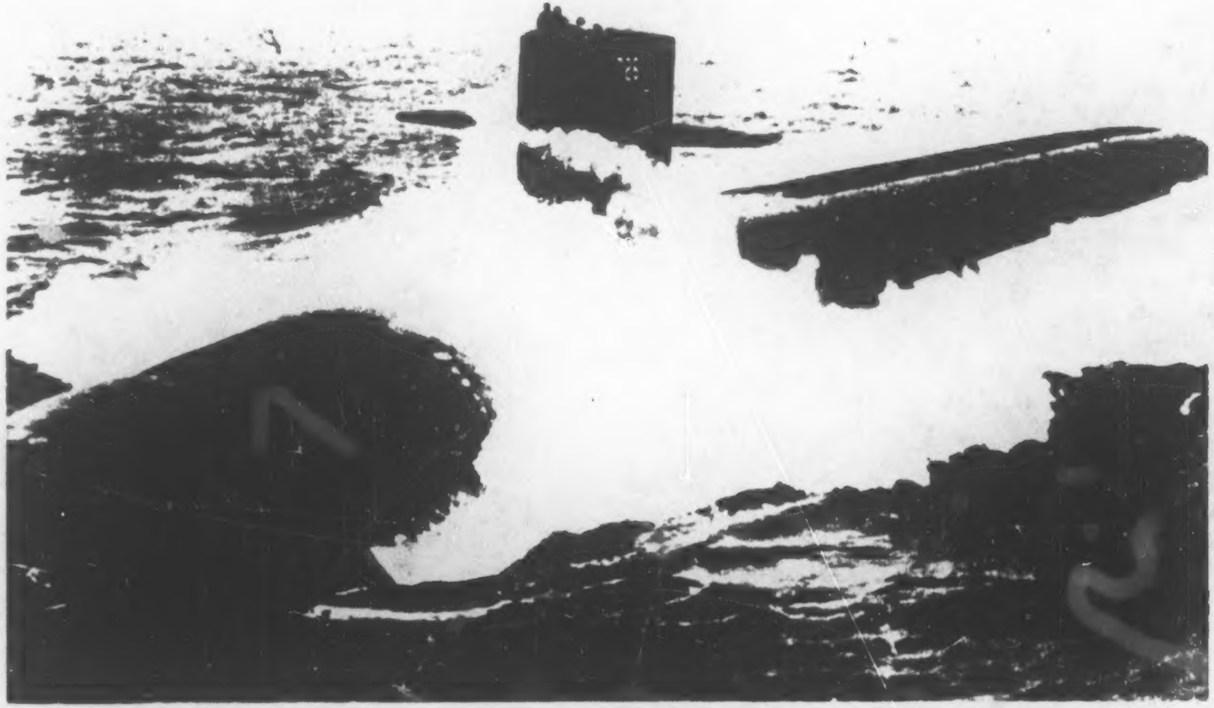
	FY 1991	FY 1992	FY 1993	FY 1994
NEW CONSTRUCTION				
TRIDENT	1	1	1	1
SSN-21	2	-	6	-
DDG-51	5	10	-	10
LHD-1	1	-	1	-
LSD-41 (CV)	1	1	1	1
MHC	3	4	5	-
TAGOS	-	2	3	-
AE	-	-	1	2
AOE	1	-	3	-
OCEANOGRAPHIC RESEARCH	1	2	1	2
AGOS	-	1	-	2
ARS	-	-	-	1
AR	-	-	-	1
LCAC	(12)	(12)	(12)	(11)
SUBTOTAL	15	21	22	20
CONVERSION				
CV SLEP	-	-	1	-
MOORED TRAINING SHIP	-	(1)	-	-
SUBTOTAL	-	-	1	-
TOTAL SHIPS	15	21	23	20

CY 1989 NEW SHIP DELIVERIES

NR	CLASS/DESCRIPTION OF SHIP	NAME AND HULL NUMBER
1	**NIMITZ** (Nuclear Aircraft Carrier)	USS LINCOLN (CVN-72)
1	**OHIO** (Strategic Missile Submarine)	USS PENNSYLVANIA (SSBN-735)
1	**WASP** (Amphibious Assault Ship)	USS WASP (LHD-1)
3	**LOS ANGELES** (Nuclear Attack Submarine)	USS NEWPORT NEWS (SSN-750)
		USS PASADENA (SSN-752)
		USS TOPEKA (SSN-754)
3	**TICONDEROGA** (Guided Missile Cruisers)	USS PHILIPPINE SEA (CG-58)
		USS NORMANDY (CG-60)
		USS CHANCELLORSVILLE (CG-62)
1	**OLIVER HAZARD PERRY** (Guided Missile Frigate)	USS INGRAHAM (FFG-61)
1	**WHIDBEY ISLAND** (Landing Ship Dock)	USS GUNSTON HALL (LSD-44)
1	TAO 187 (Fleet Oiler)	USS LEROY GRUMMAN (TAO-195)
3	**AVENGER** (Mine Countermeasures Ships)	USS DEFENDER (MCM-2)
		USS SENTRY (MCM-3)
		USS GUARDIAN (MCM-5)
5	TAGOS 1 (Ocean Surveillance Ships)	USNS AUDACIOUS (TAGOS-11)
		USNS BOLD (TAGOS-12)
		USNS TITAN (TAGOS-15)
		USNS CAPABLE (TAGOS-16)
		USNS TENACIOUS (TAGOS-17)
1	Oceanographic Ship	USNS MAURY (TAGS 39)

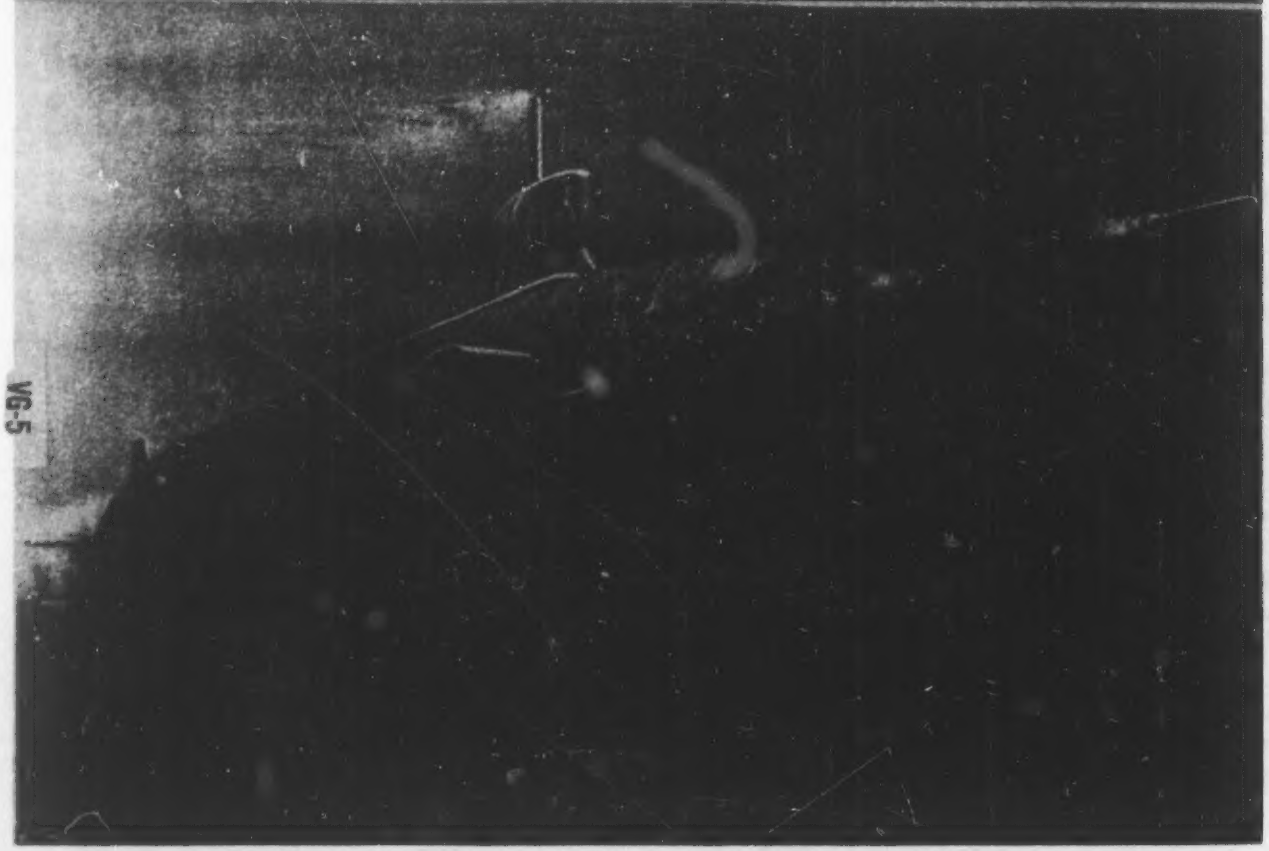
THE CONVERSIONS INCLUDED TWO AUXILIARY CRANE SHIPS (TACS)

TRIDENT SUBMARINE - SSBN

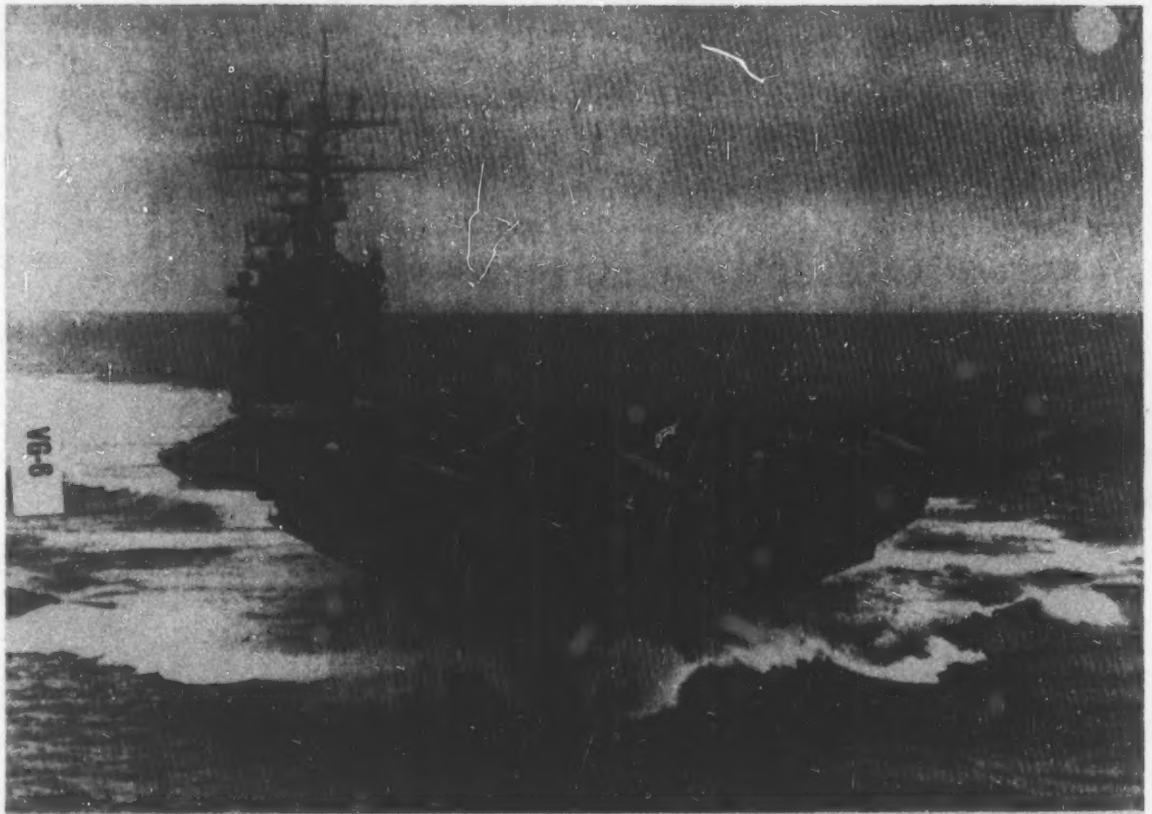


VG-4

NUCLEAR ATTACK SUBMARINE - SSN 21



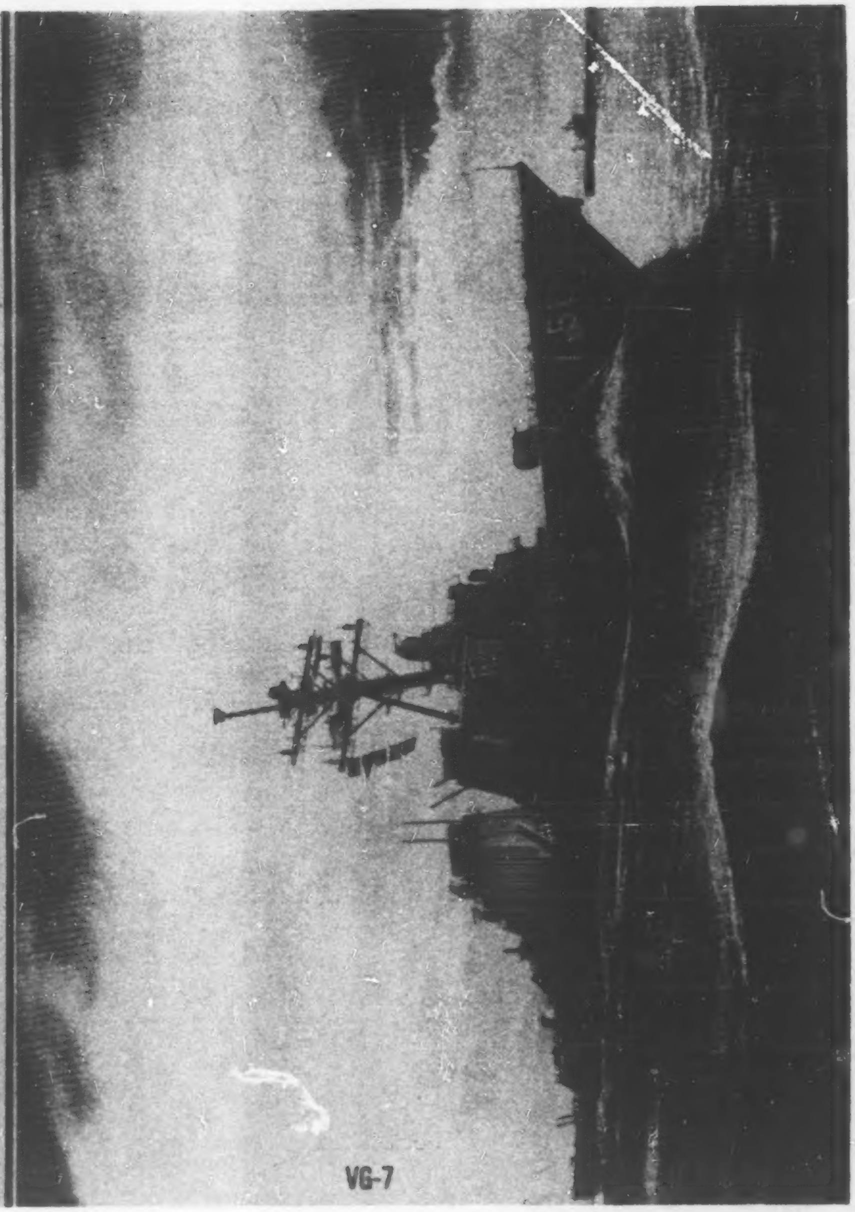
VG-5



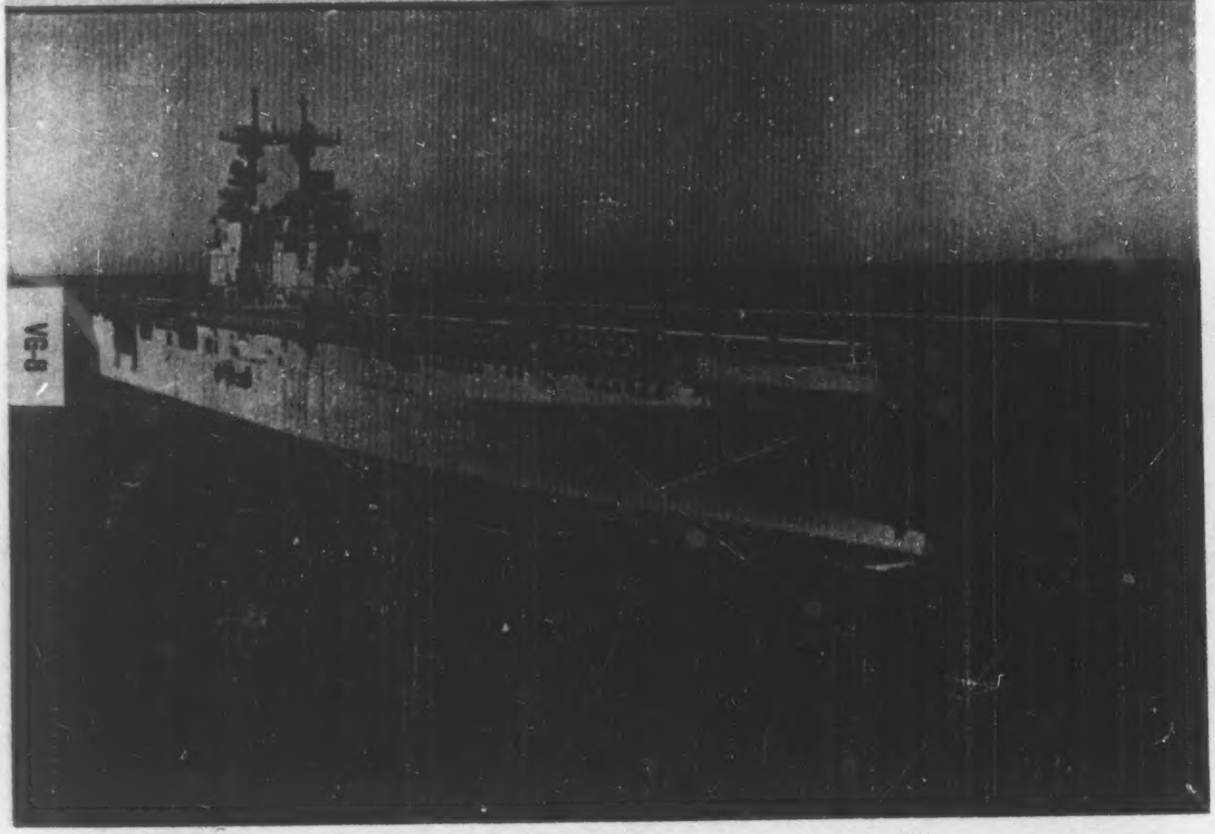
U.S.S. ABRAHAM LINCOLN (CVN72)

Nuclear-Powered Aircraft Carrier - 1989

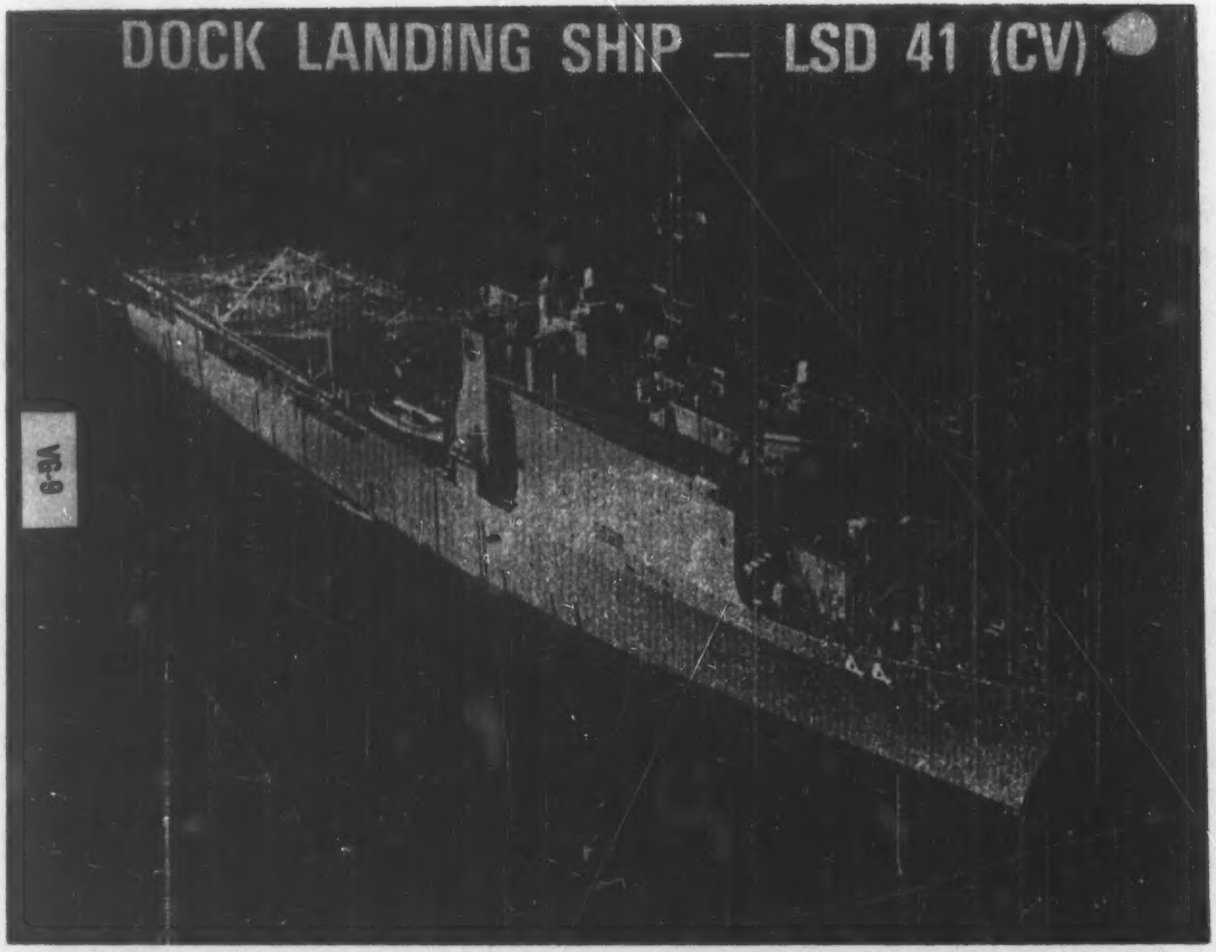
GUIDED MISSILE DESTROYER - DDG 51



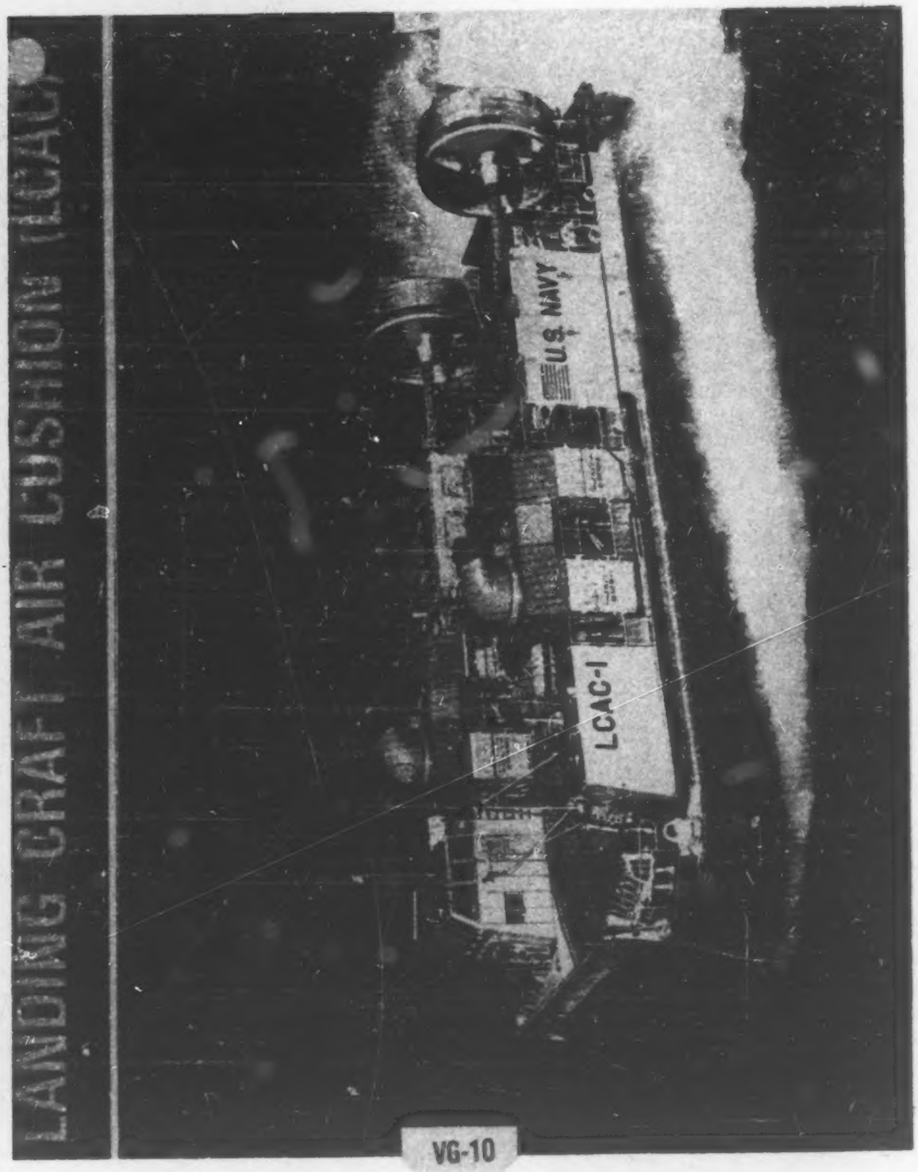
AMPHIBIOUS ASSAULT SHIP WASP (LHDI)



VG-8



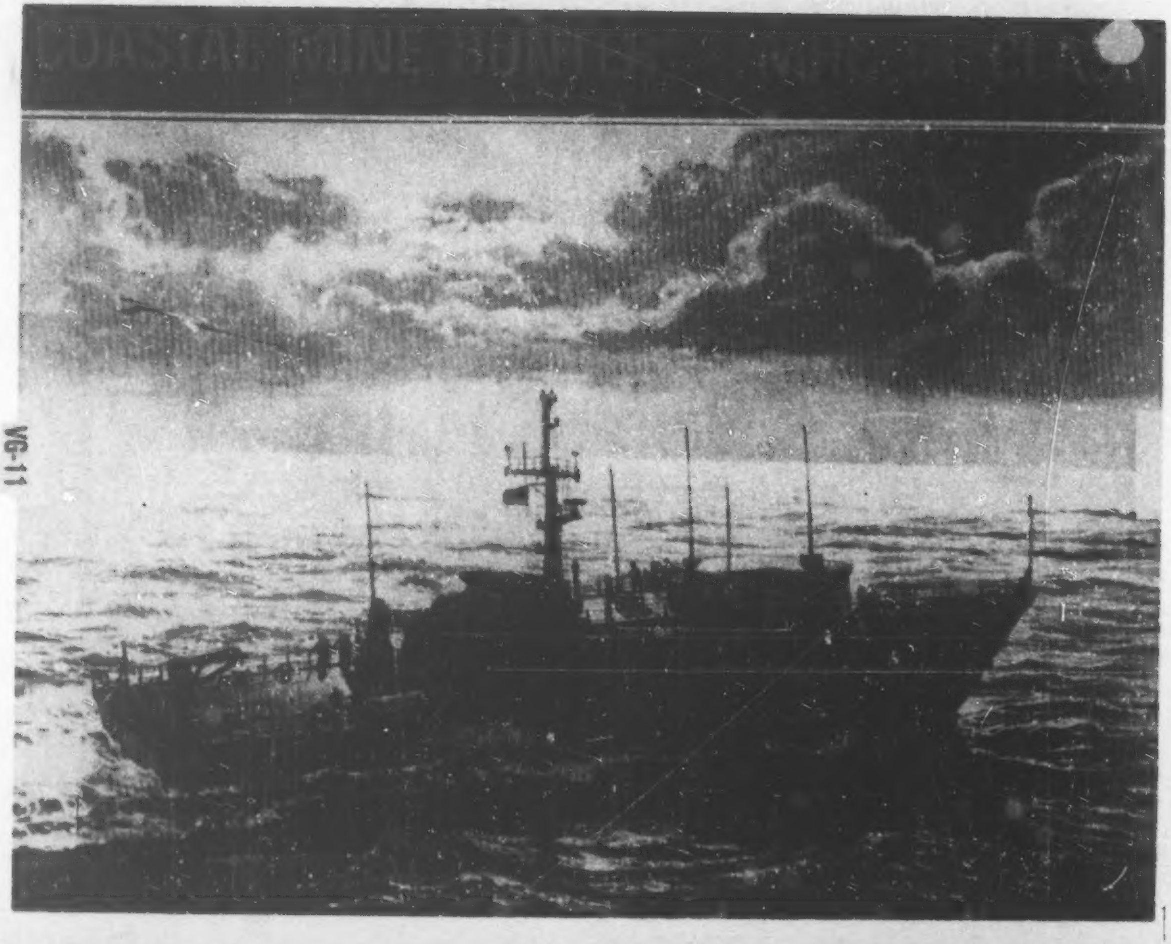
DOCK LANDING SHIP — LSD 41 (CV)



LANDING CRAFT AIR CUSHION (LCAC)

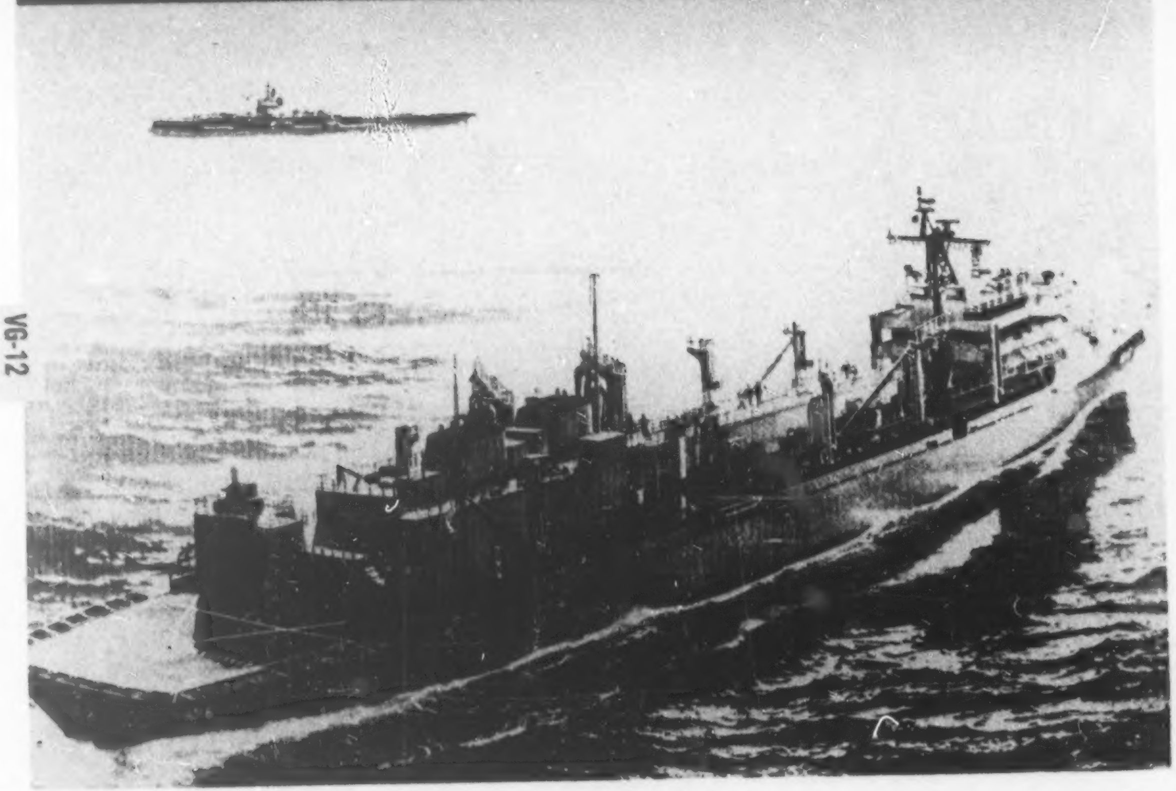
U.S. NAVY
LCAC-I

VG-10


COASTAL MINE HUNTER

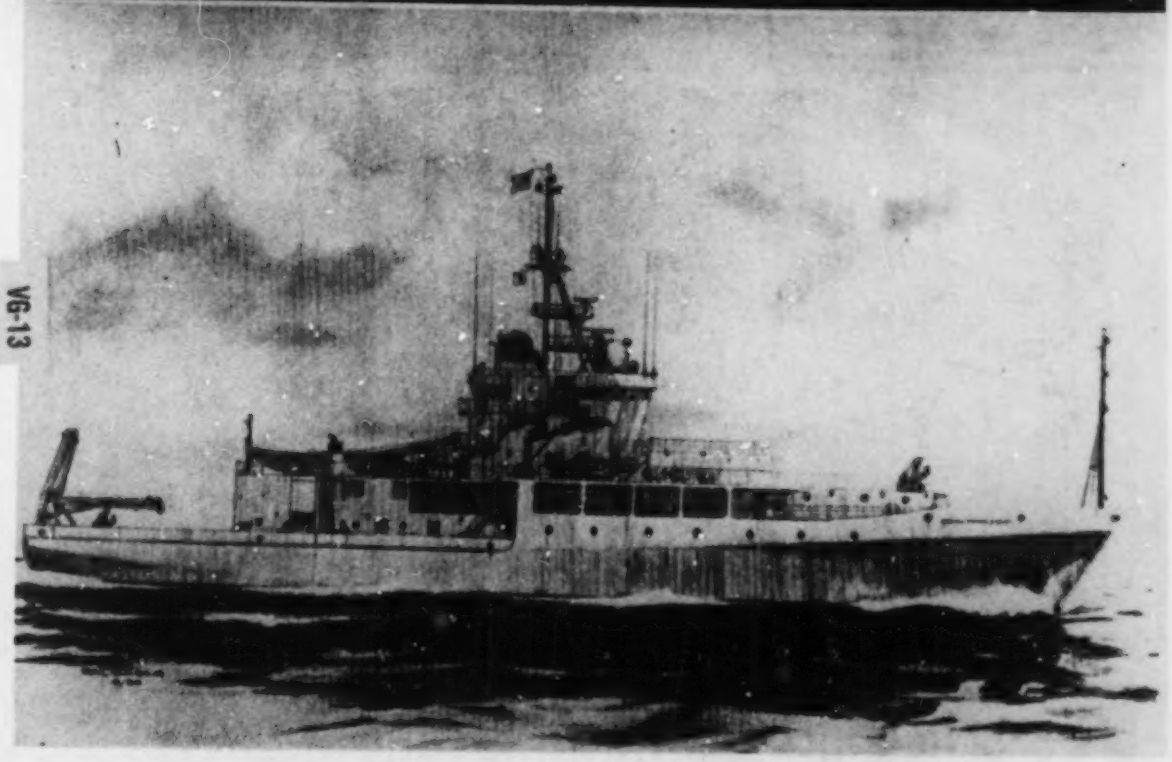
VG-11

FAST COMBAT SUPPORT SHIP-AOE 6



VG-12

OCEANOGRAPHIC SHIPS



VG-13

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
GOVERNMENT OPERATIONS COMMITTEE
LEGISLATION AND NATIONAL SECURITY
SUBCOMMITTEE

STATEMENT OF

VICE ADMIRAL D. L. COOPER, U.S. NAVY
ASSISTANT CHIEF OF NAVAL OPERATIONS
(UNDERSEA WARFARE)

BEFORE THE
SUBCOMMITTEE ON DEFENSE
OF THE HOUSE APPROPRIATIONS COMMITTEE
ON
SHIPBUILDING AND OVERHAULS
APRIL 25, 1990

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
GOVERNMENT OPERATIONS COMMITTEE
LEGISLATION AND NATIONAL SECURITY
SUBCOMMITTEE

The United States is an island nation dependent upon the Navy to protect its lifeline of vital resources with our European and Asian trading partners as well as to meet our defense commitments to our allies. This geographic reality will remain despite a rapidly changing world; it underlines the need for preeminent naval forces. The varied and increasing capabilities of our nuclear submarines are absolutely vital in support of the Navy's current and projected ability to maintain freedom of the seas.

When addressing current and future submarine force requirements, we must act on facts. **We must understand and address the reality of the capability of our potential adversaries.** The basic purpose for the United States submarine force remains the maintenance of a credible deterrent vis-a-vis the Soviet Union while providing a balanced power projection capability to protect our interests and those of our allies against a variety of regional threats. The fact that there are over 400 submarines operated by countries other than the two major powers and the fact that many of the third world terrorist countries and potential opponents are procuring submarines makes it mandatory we maintain an ASW capability necessary to negate them.

Recent intelligence estimates reaffirm that the Soviets remain totally committed to their nuclear attack submarine development, production and improvement. In fact, there is indication that their pace is actually increasing. As they did in 1989, **the Soviets in 1990 will complete production of twice the number of submarines as the U.S.** In the last two decades the Soviet Union has deployed 12 new classes of attack submarines; the United States has introduced just one, the Los Angeles Class. The United States has completed over twenty detailed studies within the Navy and the Department of Defense, some self-initiated and others directed by Congress, to determine the need for a new attack submarine. Finally, in light of overwhelming evidence that the Soviet commitment to SSN production and research was narrowing our qualitative lead in submarine technology, the Navy took two specific actions: first a program to improve the 688 Class (688I); and second, initiation of the SEAWOLF (SSN-21) Shipbuilding program.

The Los Angeles class, designed in the late 1960s and initially commissioned in 1976, has been steadily upgraded through the Improved 688 Class Program initiated in 1982. With the addition of Vertical Launch TOMAHAWK and Underice capabilities, and the incorporation of 25 major and over 2000 minor improvements, the Improved 688s have twice the capability of earlier Los Angeles Class submarines. However, there is no longer sufficient room left in the Los Angeles Class to make the type of improvements mandatory to operate against the projected threat.

The Navy is seven years into a thirteen-year SEAWOLF program which was commenced in 1983 with strong Congressional support. We are now one year into the six-year construction of the lead ship of the class as authorized in 1989. I can report to you today that the SEAWOLF program is meeting all system requirements and thresholds. Recent dynamic force analysis has reaffirmed that the

SEAWOLF meets or exceeds every performance goal.

From its inception, SEAWOLF has been designed to be the preeminent ASW platform with significant power projection capability. When **SEAWOLF** joins the fleet in 1995, her inherent capabilities will include:

- **The ultimate Stealth Technology.** SEAWOLF will be the quietest submarine in the world at any speed. Stealth will allow SEAWOLF to operate in any ocean of the world while supporting power projection missions, controlling regional conflicts, and conducting intelligence and surveillance missions.
- **The highest tactical speed of any submarine.** In a submarine-on-submarine encounter, tactical speed, the ability of a submarine to travel at high speed quietly, is the most significant factor in determining the success of the mission.
- **The most advanced submarine combat system in the world.** The SEAWOLF's AN/BSY-2 combat system will provide the next generation of advanced submarine acoustic arrays with the enhanced detection performance required to be superior to the threat in the 21st century. The AN/BSY-2's improved processing power will significantly enhance sensor, contact, and weapons management and will allow the SEAWOLF to rapidly detect, localize, and track threat contacts while employing a variety of weapons.
- **Double the firepower of the most advanced operational Soviet submarine.** SEAWOLF's torpedo room will carry the TOMAHAWK strike missile (sea and land-attack), HARPOON antisurface ship

missile, MK 48 (ADCAP) Advanced Capability torpedo, and mines. In the future when advanced large-diameter weapons and remote vehicles (UUV) are fully developed, this submarine will be in a position to fully utilize their added capabilities.

- Sufficient design margin for growth to incorporate future technology and Mission Expansion Capability. These advances are being aggressively pursued through the Advanced Submarine Technology Program at the Naval Sea System Command and DARPA, (a program strongly supported by the Aspin Committee Report of January 1989). This SEAWOLF growth potential will be efficiently implemented using the large-diameter access hatches which will allow cost effective modernization and upgrades throughout the ship's life and significantly reduced operating and support costs.

Recognizing it is absolutely vital to thoroughly test the SEAWOLF to ensure it meets all of its operational requirements, the Navy has and will continue to execute the most comprehensive test program ever conducted for a shipbuilding program. As the SEAWOLF is being constructed, all key components of the propulsion plant and the sonar and weapons systems are being operationally tested to ensure they meet performance and live fire test requirements. Supported by our previous successful submarine construction experience and the extensive SEAWOLF test program, SEAWOLF will meet all its design goals when it goes to sea in 1995.

There is a requirement for positive action on our $178M reprogramming request. The SEAWOLF lead ship increase was due mainly to unexpected changes in economic factors, such as labor rate escalation and increased cost of equipment due to higher quieting standards. Specifically, while estimated man-hours to construct SEAWOLF have remained correct, the actual shipyard rates are higher as are the costs of the shipbuilder-furnished material and equipment. It is absolutely vital to the SEAWOLF program execution that the reprogramming requested be approved promptly to preclude costly delays in the lead ship construction.

Of all the national security issues which face us today, there is none as vital to our nation's future existence as the continued maintenance of freedom of the seas. We cannot maintain freedom of the seas in the 21st century if we concede undersea superiority to the Soviets or if we reduce our ability to project naval power to support our interests in regional conflicts. **The SEAWOLF program is the linchpin in our country's capability to execute our national military strategy at sea in the 21st century.**

SHIPYARD WORKLOAD LEVELS

Mr. **Dicks**. Admiral Lang testified before the House Armed Services Committee that an accelerated decline in the number of Navy ships will lead to a drop in shipyard workload and a subsequent decrease in work force. He noted that the changes in maintenance strategy of several ship classes, especially submarines, would drive the work force down as well. Overall, he forecast a reduction in public shipyard work force from 70,000 at the end of fiscal year 1989 to between 58,000 and 61,000 by the end of fiscal year 1991.

Please explain the specific plans for SSN-688 class submarine overhauls, why you opted to go this route, and what impact it will have on public shipyards.

Admiral **Lang**. The question relates to our maintenance plan, which has been in effect for many, many years. Specifically, on the SSN-688 class submarines, we are doing what is known as a depot modernization period at this time.

The first SSN-688 re-fueling overhaul doesn't occur until another couple of years. What that reduction in employees reflects is exactly the workload that exists in those yards at that time and that part of the budget submission is the number of employees that it takes to support those ships scheduled for overhaul.

Mr. **Dicks**. Why this dramatic reduction?

Admiral **Lang**. The dramatic reduction is just reflected in the amount of work that is occurring during that period of time, sir. There is also——

Mr. **Dicks**. It says the SSN-688 class submarines are undergoing an 11 to 12 month depot modernization period rather than the more extensive 18 to 21 month non-refueling overhauls that were done in the past.

What is the reason for that?

Admiral **Cooper**. If I may talk for a second. We made a conscious decision several years ago in order to save money and to ensure our submarines were getting more operating time, to analyze our equipment and look at extending its preventive maintenance cycle over the lifetime of the submarine. Based on this analysis we felt that we could justify having shorter overhaul periods.

Today, we have shortened overhauls called depot modernization periods and don't have to go through as many overhauls. This has saved a great deal of money. It was a conscious decision made by us four years ago.

Mr. **Dicks**. How much will you save?

Admiral **Cooper**. My guess is that on each overhaul, we will save about $100 million. The depot modernization period will come in at $100-to-110 million and overhaul at $170-to-190 million.

That is off the top of my head.

POSSIBLE BUDGET CUTS

Mr. **Dicks**. As you know, the House is about to consider a budget resolution that would reduce defense budget authority by $32 billion from the CBO baseline and $23 billion from the Administration budget.

Yesterday, Secretary Cheney submitted a hypothetical scenario of what would happen at those levels. Under this type of cut, what would the likely impact be on ship maintenance activities and how would that translate to public and private shipyards?

Mr. **Cann**. Mr. Chairman, I haven't seen this proposed cut. I saw something in the newspaper this morning.

That is the only time I have seen it so I don't have an opinion about what the impact would be.

Mr. **Dicks**. If we know what the Cheney budget is for Defense, and if the House should go from $303 billion to $295 billion in outlays and from $306 billion in budget authority to $283 billion, is that going to have an effect on ship maintenance activities and is it going to have an effect on public and private shipyards?

Mr. **Cann**. I think there is no question it will.

As you continue to draw down the budget, you will find there will be fewer ships built or more ships forced to be retired.

Mr. **Dicks**. One of your strategies up to this point has been retiring submarines, is that correct, attack submarines and ballistic missile submarines?

Mr. **Cann**. The ballistic missile submarines are part of a phased retirement, because we are replacing the existing forces with the Trident as we move into that area.

With respect to the retirement of SSN's, part of that has been to take SSN's that do not have great life remaining and avoid the cost of the overhauls by putting them into retirement without having an extensive overhaul for the short period of life that they have left after overhaul.

Mr. **Dicks**. If there were further budget cuts, would you accelerate taking out older submarines or older surface ships?

Mr. **Cann**. I am not sure exactly how we would take the cuts, but it is clear there will be more cuts.

Admiral **Cooper**. If a submarine is coming to the end of its life, the best time to take it out of service is just prior to an overhaul. If there is not sufficient life to use that ship after the overhaul, then the decision has been made to take it out of commission.

Mr. **Dicks**. We have been doing that with submarines, what about surface ships?

Are we going to start taking out the older surface ships? Why has the Navy focused on the older submarines here? Is it because we are short of surface ships?

Admiral **Nyquist**. We have also been retiring surface ships since 1988. We have, and are, retiring 48 surface combatants——

Mr. **Dicks**. You have taken your share?

Admiral **Nyquist**. Retiring older ships; yes, sir.

SHIPYARD CLOSURES

Mr. **Dicks**. We are seeing a continuation of the downward pressure. Two public shipyards are on the list of candidates for base closure. What factors are being determined to decide whether to proceed with these closures?

Mr. **Cann**. The Navy has been reviewing all industrial and base facilities as part of the overall base closure and realignment review directed by the Secretary. Long Beach and Philadelphia shipyards appeared on the potential DOD closure list because of possible force structure reductions in aircraft carriers, battleships and surface combatants.

If the shipyards are closed, the Navy would continue doing whatever work is required in public/private competition, competition between public and private yards and by public yard assignment maintain the minimum core workload at the remaining shipyards.

This is only a potential action being looked at by the Secretary of Defense.

Mr. DICKS. To what extent will available overall workload for public yards especially for non-nuclear ships be a factor in this decision about closing these two bases?

Mr. CANN. I think that on that particular subject, I would like to ask Admiral Cantrell to discuss that issue.

Admiral CANTRELL. In the studies for closure of the shipyards, obviously we have to consider the force structure, which ships need maintenance and, therefore, what facilities and skills are needed.

If the force structure eliminates certain types of ships obviously we do not need to retain the facilities and people that are necessary to maintain those that were eliminated.

In terms of that maintenance, which is common to both public and private and the total industrial base, we would plan to distribute the work force in accordance with all the regulations and rules which we have now, while doing it in the most cost effective manner to the public.

In evaluating that, then we have to consider the cost of doing the maintenance in a private versus a public yard and those would again be factors which are thrown into the decisions.

Those studies are ongoing. We do have to match the projected force structure. As Mr. Cann said earlier, we don't have that yet.

Mr. DICKS. What problems would such closures create for operations at Long Beach and Philadelphia—any?

Admiral CANTRELL. If we closed a yard which was necessary to support a certain kind of ship, it would decrease operational readiness and our ability to meet global commitments. It would cost more to have the work done by——

Mr. DICKS. But if the overall level of work in public yards is going down already, wouldn't you just re-allocate the work to the other public yards or would you go into the private sector?

Admiral CANTRELL. Yes, sir. We are constantly making adjustments. The problem occurs when we suddenly don't have the skills and the facilities to which to allocate the work, and because of the decreasing private sector industrial base and the decreasing public sector work, we remain constantly concerned that we don't lose a critical part of the industrial base.

Mr. DICKS. Is the Navy looking at the possibility of doing shipbuilding work or commercial modifications if, say, a double hull requirement is imposed on ships like our tankers in U.S. waters at public yards? Is that being considered at all?

Mr. CANN. I don't know of anything like that being considered so far.

Mr. DICKS. Mr. Livingston.

TRIDENT SUBMARINE PROCUREMENT

Mr. LIVINGSTON. Thank you, Mr. Chairman. Gentlemen, getting back to the submarines that the Chairman referred to, do you believe that deleting the procurement of the 1991 Trident submarine would send an inappropriate signal to the Soviets as well as leave our arms negotiators high and dry?

Admiral COOPER. Yes, sir, I assume you are talking about the 18th Trident. I do feel that way. I feel it is especially important now, since we have put the D-5 missile to sea and it represents the most modernized leg of the triad.

I think it would be unfortunate to not authorize and appropriate for the 18th Trident.

Mr. LIVINGSTON. We have spent our peace dividend three or four times and all of a sudden find the Soviets in Lithuania. I would think it would be important not to curtail our plans for an effective deterrent and that is part of that element.

If there is an interruption in funding for the actual hulls this year, that, in fact, would adversely impact the shipyards on the one hand, but I understand that it would also even more adversely impact the manufacturers of the nuclear reactor; is that correct?

Mr. CANN. Anticipating this sort of a question, I asked Admiral Cantrell to take a look at this issue so he would be prepared to discuss it here, and he would like to address that.

Admiral CANTRELL. Yes, sir. Your observation is very correct in that as we have leveled out at one per year, we have lost a lot of vendors who have been unable to sustain the business base.

Mr. LIVINGSTON. How many vendors for reactors do we have now at this moment?

Admiral CANTRELL. We are down to two.

Mr. LIVINGSTON. What are your projections—I will not ask that question. It doesn't look good.

Admiral CANTRELL. Yes, sir. I have to emphasize it is more than just reactors. The reactor is very important, but we have pumps and valves and large amounts of items which represent hundreds of vendors. Each time we turn to the number of vendors as the market is shrinking, we find the vendor base is fewer by 80 or 90.

So an interruption in the production line and attempts to re-start it again will obviously incur great additional cost not only for the vendors, but also for the ship builder, because the ship builder will have to recycle his work force, lose the benefits of repetitive production and add $115 million to the next ship in line and lower amounts to the following ships and that is assuming that other submarine work at EBDIV remains as planned the vendors survive the interruption.

Mr. LIVINGSTON. So an interruption in production funds this year doesn't save us anything; it may even cost us severely because it will cause adverse repercussions to the producers and their suppliers?

Admiral CANTRELL. It would cost, if interrupted for one year, $115 additional million, assuming the shipyard workload remains as planned and the vendors survive the interruption.

Admiral COOPER. We are talking about very highly qualified technical people who are making the valves and pumps for submarine safety and for nuclear safety.

We cannot talk about going out tomorrow and getting more vendors. We are talking about a concentrated group of people, and as you lose that base, you suffer throughout the rest of the time.

Mr. LIVINGSTON. This is so important that I would like to open the record at this point and allow the Navy to amplify these answers to whatever degree they find necessary.

[The information follows:]

A constant build rate is also important in maintaining the submarine industrial base. Deletion of the FY 1991 ship will extend lead times and increase costs to procure components from vendors, resulting in longer construction times for all submarines. Lower build rates of any submarine class will adversely impact quantity buys for everything from steel to reactor components, causing cost increases in Government Furnished Equipment (GFE) and Contractor Furnished Equipment (CFE). Our vendor base in the area of pumps, valves and large diameter pipe is diminishing due to the general decline in shipbuilding. This is particularly true in the submarine community with its unique requirements for quieting, high pressure fluid systems and steam propulsion. A further decline in the shipbuilding program will decrease competition and potentially limit some major components to sole source procurement.

Mr. DICKS. Would the gentleman yield?

Mr. LIVINGSTON. Yes.

Mr. DICKS. Do you believe deleting procurement of the fiscal year 1991 submarine would send an inappropriate signal, even though some submarines which are in an advanced state of construction would be retained?

Admiral COOPER. Yes, because the number of RVs that we will have at sea further down the line will be reduced. We have been buying these submarines at a rate of one per year. This is number 18, and, of course, we have already put in one year and two year advanced procurement into that particular submarine.

It will cost more if you gap it for a year. I think we should buy the fiscal year 1991 submarine and continue to look at the total numbers. As you look at the triad and its three legs, the decision has to be made on the basis for the three legs. When you analyze why you have the triad, each leg had certain discrepancies. They used to say the Trident submarine had the discrepancies of inaccuracy and poor communications. We no longer have those problems and they should make sure they look at the right parameters to prove that. I think we should get the 18th submarine this year and continue to look at the total numbers.

Mr. DICKS. We have a little problem with the D-5—not the missile itself, but the warhead, which apparently is still hanging out there.

Admiral COOPER. The D-5 has been extremely successful with the eight test shots we have had. It is now deployed, three years earlier than we first expected.

The problem has to do with Rocky Flats and bringing that facility back up. There are however, work-arounds to that. It will not impact the 18th submarine. It may impact the fourth or fifth submarine down the line, but we have ways of working around that. Thus, I don't feel that the Rocky Flats problem should impact the 18th submarine.

Mr. DICKS. We need to get a decision about the split between ICBMs and SLBMs. Congress is saying we have a terrible budget problem, how are we going to fund everything everybody wants, and this is a problem because of that.

NAVY SIZE AND BUDGET CUTS

Mr. **Livingston**. Getting to the surface ships, a couple of years ago we were talking in terms of a 600-ship Navy. Now I am not certain whether we are talking about a 540-ship Navy or a 420-ship Navy.

Can you tell us what the impact of the fiscal year 1991 budget request from the President would be in terms of the overall size of the Navy and compare that, if you would, with the most recent Democrat proposals for even cutting the defense budget by a total of ten percent?

Admiral **Nyquist**. Mr. Congressman, from a requirements standpoint, I think today we talk less about a number like 600 than we do the capability that those numbers produce. We are operating now with a 14-carrier battlegroup and two battleship battlegroup level with the capability to provide amphibious lift for a Marine Expeditionary Force and a Marine Expeditionary Brigade.

That is a good capability. This budget this year sustains that capability and, in fact, an amphibious lift will allow us to get just to about 100 percent of our lift by toward the end of this decade.

So we are looking more at capability. We certainly need to get on and sustain the DDG-51 building program, the SSN-21 programs, because those are the ships that will carry us into the 21st Century and take on the threat.

Certainly we know that we are going to have a Navy smaller in numbers than the 600-ship Navy that we had projected earlier in the eighties. That is not achievable, but I think we can produce and maintain a very capable Navy, a Navy capable of carrying out our national strategy in the nineties and beyond.

Mr. **Livingston**. If we were to knock out another $8 billion plus in outlays and cut the procurement budget by some ten percent as some have proposed, how would that impact your overall plans for the Navy.

Admiral **Nyquist**. It would certainly have an impact. To get back to answer peripherally Mr. Dicks' question, as the force levels go down, the CNO looks around and says I have got to maintain readiness and readiness is people maintaining ships, so even though you might see the overall maintenance dollars come down as the numbers of ships necessarily come down, the dollars per ship to keep those ships going remains at a reasonably constant level.

But I have a very simple theory. Pretty soon, if you don't build ships, you are not going to have a Navy, so we must maintain a viable shipbuilding program and I think the one in the President's budget that you see in fiscal year 1991 and beyond will do that.

Certainly any reductions are going to have an impact on that.

Mr. **Livingston**. The fiscal year 1991 shipbuilding and conversion request is the lowest since ten or twelve years ago. In fiscal years 1978 and 1979, the Carter Administration requested 15 and 17 ships, and conversions respectively, yet the Congress only approved 13 and 12 in those two fiscal years. Despite the diminishing European threat, we still have the Middle East problems, Korea, extreme uncertainty in the Philippines, and a host of Third World problem countries to deal with.

Colin Powell recently testified that the less our forces are forward deployed, the more efficient and effective our sealift and airlift must be to get our forces back into action.

Hasn't the changing world situation actually reinforced our country's needs for sealift, particularly amphibious forces lift, as well as the maintenance of carrier battlegroups?

Admiral **Nyquist**. It absolutely does, Congressman Livingston, and this budget will do it. I think there is a need to talk further about sealift, but in the combatant force surface ship and submarine programs, I think we are headed in the right direction.

For amphibious lift, we are modernizing our amphibious ships and the solid over-the-horizon capability given by the LCAC is something that the Navy-Marine team looks at with great favor.

It has revolutionized amphibious warfare. In an uncertain world faced with regional crises, this maritime nation needs a strong Navy.

Mr. **Livingston**. A lot of folks have talked about the deactivation of two carrier battlegroups. How would that impact our sailors and our ability to meet our current treaty commitments around the world.

Admiral **Nyquist**. It is very easy to peel the onion and say what will one less do. The problem is every time you take a carrier away, somebody on some carrier is going to have to spend more time at sea than he would have had the other carrier not been taken away.

Fourteen carriers—we still state a requirement for 15. We understand and we recognize that we will have to stay with 14 through the rest of the century. The JCS plans call for 20 to 22 carriers. So every time you take a carrier away, you reduce this nation's capability and you put a larger workload and greater separations on our sailors.

Mr. **Livingston**. Would that impinge on our treaty commitments?

Admiral **Nyquist**. Yes, sir. We are certainly tied in a treaty sense to many treaties. Certainly, NATO is a major treaty, but the fact that we are a maritime nation and an island nation means that if we don't have our forces forward deployed, somebody else is, and there are a lot of vacuums out there that I think it is important that our maritime strategy, our national strategy, calls for us to be there.

That has sustained us since the Second World War.

SEALIFT PROGRAMS

Mr. **Livingston**. This committee has made a major initiative in trying to foster sealift, and provide for new shipbuilding programs for that purpose. If this Congress, once again, tells you that in fiscal year 1990, in the 1990 supplemental, to proceed with the sealift program, will you proceed with this program quickly? And what specific designs and acquisition strategies do you envision for the program?

Mr. CANN. With respect to the sealift issue, I have taken a look at the sealift issue since I have been back in the building. Of course, we need to have sustained sealift to support operations. Ninety-five percent of practically everything we need to move is via sealift. Over the last several years, the Navy has spent, with your help, $7 billion to improve strategic sealift. Going back and looking at the planning assumptions that existed in 1988, and earlier, we had an excess sealift capability to support the planning numbers that were being used.

For those planning numbers, we had essentially everything except 15 percent of the unit lift capability that was required. With the changes that are taking place in the world, there are obviously going to be different kinds and different amounts of sealift requirements, but at this juncture, these operational requirements for sealift haven't been defined because people are still trying to shape what they are trying to do.

The sealift that is available will support the planning factors that were used in 1988.

Mr. LIVINGSTON. We are putting in new money for sealift. Are you saying we actually have an excess capacity?

Mr. CANN. I understand that we have enough to do the job at the present time with the exception of the unit lift roll-on/roll-off capability.

Mr. LIVINGSTON. I was given to understand that some experts formerly with your office were given to believe that we actually had a great shortage of support ships for our major ships on the surface.

Mr. CANN. All we can do is to look at what people say they have to transport and how fast they have to get it there and look at the ships available and the ships that have been purchased to do the job. Based on reviewing this, it would look like we have sufficient sealift capability. I would be happy to have Admiral Nyquist give you his views on the subject.

Admiral NYQUIST. I think we have a pretty good track record, Congressman. We have stated, and I know that it is not always popularly received, but sealift is a national issue. The President has issued a National Sealift Policy. The Navy has invested over the period of the eighties over $7 billion and has produced fast sealift ships. What we are facing now is a very turbulent period that it behooves us all to sit down and kind of try to figure out what the future holds for us and that is what we are doing. There is an interagency task force sitting down right now saying if there is longer warning time, what are the requirements? Is it still ten divisions in ten days? That has to be looked at again. So I think compared to what you may have heard in last year's hearings—certainly events have changed since then and are going to force us to take a look at it.

Mr. LIVINGSTON. One of the ingredients in our ability to meet the needs of the future is, of course, to have a shipbuilding industry and this is one of the few areas where we have still continued to build, and I think that that ought to be a major consideration in your future planning.

Admiral NYQUIST. Yes, sir, it is.

Mr. LIVINGSTON. Thank you, Mr. Chairman.

Thank you all.

Mr. **Dicks**. Mr. AuCoin?

SHIP REPAIR COMPETITON

Mr. **AuCoin**. Thank you, Mr. Chairman.

In the defense management review recently sent over to the Congress by the Department, there were several suggestions concerning ship repair that I want to explore today.

One question that I have is on the recommended deletion of the public/private competition. I find that a rather surprising recommendation since, in several years past, up to now, the Navy itself has come before this committee and testified that it has been the public/private competition that has saved hundreds of millions of dollars to the Navy, to the taxpayers as a result of the competitive sharpening of pencils that take place.

My question is why now are we getting a recommendation in the DMR that this be deleted? Why would the Navy want to delete this competition?

Mr. **Cann**. The issue, I think, that triggered this recommendation in the Defense Management Improvement Act, Sections 209 through 211 of this Act had to do with——

Mr. **AuCoin**. Public/private competition.

Mr. **Cann**. Had to do with short-term repair work of six months or less. The issue has to do with whether to permit the short-term repairs of these ships to be solicited only in the homeport area unless inside competition exists. The reason for this has to do primarily with the impositions on the crews because if these are short term efforts or under six months and you have to move a crew for up to six months, fifteen hundred miles away, it was an undue hardship and expense to the duty crew members.

Mr. **AuCoin**. Mr. Secretary, I have been through that issue a number of times, not only with the Navy, but also with some of my colleagues from California, but I don't believe the public-private competition that has been in existence and has saved the Navy the hundreds of millions of dollars that I referred to is limited only to short-term repair work.

I think this really involves larger jobs as well unless I am mistaken. Maybe Admiral Lang can correct me if I am mistaken. Is it all short term?

Admiral **Cantrell**. The statements relate to Section 210. It was not the intent of Section 210 to eliminate public/private competition. That competition will continue. The discussion of Section 210 had to do with evaluation factors in the process relative to access to the supply system and some evaluations of overhead benefits.

Mr. **AuCoin**. You are telling me then that you are not recommending the deletion of the public-private competition?

Admiral **Cantrell**. We are not recommending elimination of public-private competition.

It will continue.

Mr. **Cann**. The issue is strictly aimed at the one issue of six months' maintenance schedules.

Mr. **AuCoin**. Let me ask you about this other recommendation in the DMR and that is the recommendation to allow award of contracts without discussion on any basis whatsoever, other than price.

I understand that is a recommendation that has been made, and my understanding is that current regulations allow you to do that now under certain circumstances. I have a list of circumstances here—that the winning yard isn't capable of doing the work, that the winner was declared through a process involving not enough competition or no competition; in other instances, that the competition was not qualified.

I think there are a couple of other things by regulation in which you can do that. Why do you want to move on a blanket basis with legislative changes to allow award of contracts without discussion on any basis whatsoever other than price?

Mr. **Cann**. Well, first of all, I have to say that——

Mr. **AuCoin**. That does have an impact on the public-private competition.

Mr. **Cann**. I am sure you are correct, but I am not familiar with that particular recommendation. I don't think I have seen it in my six weeks back in the building in my crash course in shipbuilding issues, that is one that has escaped me. Regardless of whether that is the case, I would like to take that question, understand the question and get back to you with a complete answer.

I don't think anybody here is familiar with that.

[The information follows:]

DMR Section 204 amends 10 U.S.C. 2305(b)(4) to authorize the Department of Defense to evaluate competitive proposals and award a contract without discussions to the offeror whose proposal represents the greatest benefit to the Government based upon the evaluation factors set out in the solicitation.

The Competition in Contracting Act permits award of a contract without discussions only if, among other requirements, it is demonstrated that award of an initial proposal would result in the lowest overall cost to the Government. Recent GAO cases have interpreted this to mean that award can be made without discussions only to the lowest acceptable offeror.

In solicitations where an offeror other than the low offeror clearly provides the best technical proposal at a reasonable price, it is in the Government's best interest to award to that offeror. A round of discussions will not significantly improve the superior proposal, but will only result in unnecessary and potentially multiple requests for best and final offers and additional costs to the offerors and to the Government.

Mr. **AuCoin**. I can understand that.

Admiral Lang, Aren't you in charge of ship maintenance and modernization, ship repair?

Am I wrong on that?

Admiral **Lang**. No; That is correct, sir.

Mr. **AuCoin**. You are?

Admiral **Lang**. Yes, sir. That is my job.

Mr. **AuCoin**. Are you familiar with this?

Admiral **Lang**. I am familiar with the background on it. It did not come through my office.

Mr. **AuCoin**. Where did it come from?

Admiral **Lang**. I am not sure, sir.

Mr. **AuCoin**. Is this an OMB idea or a Navy idea?

Admiral **Lang**. I don't know.

Mr. **AuCoin**. You mean to tell me that on something as significant involving something that is going to keep a healthy private shipyard capacity available—these are pretty slim pickings out here—that no one today knows why we have a DMR that recommends what is clearly going to impact on the industrial infrastructure for shipbuilding?

Admiral LANG. I read the laws and the background on it is that by doing that, you are able to inject into past performance——

Mr. AUCOIN. Repeat that, please. Start over again.

Admiral LANG. Part of the solicitation and awarding of the bid could, in fact, take into account past performance by the people performing those types of availabilities, and that was my understanding of what the intent was.

Mr. AUCOIN. Well, I understand that the committee staff sent questions—alerted you and gave the panel a heads-up on the kinds of questions that are going to come up today, including this one.

I don't understand why no one here is able to definitively answer this question. I am concerned that you seem to be unable to answer a question on what I take to be an explicit recommendation in the DMR that changes be made, legislative changes be made to allow award of contracts on ship repair without discussion on any basis other than price. That has enormous consequences in terms of keeping our infrastructure in place outside of Navy facilities.

Mr. CANN. Mr. AuCoin, the committee staff did provide us heads up on some questions, but I don't recognize that question.

Mr. AUCOIN. Let me read—just looking at the DMR, looking at Section 210—this is on page 7, and it states, in the DMR, Section 210 repeals 10 U.S.C. 7313 that requires the Secretary of the Navy to ensure, prior to award of a project for repair, alteration, overhaul or conversion of a naval vessel following competition between public and private shipyards that certain criteria must be met.

It goes on in detail, but it seems to me that what I have indicated, that you are dropping that requirement, you are asking us to drop that requirement, is a correct reading on my part.

Mr. CANN. Fact of the matter is that for whatever reason, I didn't get that heads up on that question and I am not prepared to answer that question here.

I don't think that anybody here has sufficient background to give you what I would call an answer that would be complete and satisfactory to the committee.

So with your indulgence, I would like to review that issue and get back to you with a complete answer.

[The information follows:]

The Navy is not proposing to delete Public/Private competition but rather to repeal 10 U.S.C. 7313 which requires that the Secretary of the Navy ensure, prior to award of a project for repair, alteration, overhaul or conversion of a naval vessel following competition between public and private shipyard, that a comparability analysis is done which includes certain factors and then make the award based on that comparability analysis. Two of the factors which Congress directed be included in the comparability analsyis are the full cost of future retirement benefits of civilian employees and either equal access to the Navy supply system for private contractors or a factor in the comparability analysis reflecting this advantage to public shipyards.

The Navy will continue to consider the following costs in its evaluation of public/private competition: military personnel; facility depreciation; unemployment compensation; future retirement benefit of civilian employees; and Administrative Project Office (for public shipyards), or Supervisor of Shipbuilding, Conversion and Repair (for private shipyards). The factors are evaluated as part of the intricate methodology used by the Navy in its comparability analysis. These factors have been reviewed and approved by the General Accounting Office.

DEFENSE MANAGEMENT REVIEW

Mr. AuCoin. Can I ask you who prepares the DMR on the Navy side?

Mr. Cann. My understanding is the Navy part of the DMR was a comprehensive effort run out of the Secretary of the Navy's Office with large committees of people on various panels.

Mr. AuCoin. Would that portion of it having to do with ship repair and contract awards come from within the shops of the Navy that have responsibility for that?

Would they be involved in the discussions of those items that will be under consideration of the DMR?

Mr. Cann. I would have to get the specifics of that for you.

I have certainly read the DMR, but I don't know precisely how it was put together because I wasn't there.

[The information follows:]

No. The DMR recommended that the Department work with Congress to identify statutory impediments to efficient management. In response to the DMR, a Legislative Review Task Force chaired by the Honorable John O. Marsh, Jr., was established with representatives from the Military Departments, the Office of the Secretary of Defense, and Defense Agencies. The issue you are referring to are related to Section 209, 210, and 211 of the administration's Defense Management Report Improve Act (DMIA) which was the product of the Legislative Task Force. The DMIA was transmitted to the Congress by Secretary Cheney on 5 April 1990.

Mr. AuCoin. You have indicated though that the people who are running those shops or who have those responsibilities are at this hearing today.

Mr. Cann. Some of them are. Most of them aren't.

Mr. AuCoin. If you would respond for the record, I would appreciate it.

[The information follows:]

On 17 July 1989, the Secretary of the Navy established the Department of the Navy Management Review Task Force to conduct, oversee, and coordinate the detailed planning required by the DMR. The Task Force was headed by the Special Assistant to the Secretary of the Navy and was comprised of approximately 120 senior Navy and Marine Corps officers and civilians from throughout the headquarters elements of the Department and the major acquisition commands.

Mr. AuCoin. I will be eager to read the responses because I think we have a series of suggestions that are going to just further—if Congress agrees—weaken the infrastructure and the shipyard capacity that I think this country has got to have.

But I will let you respond for the record and be delighted to have the response as early as you can give it to us.

SSN-21 CONTRACT AWARD

Mr. Dicks. On January 9, 1989, the Department of the Navy awarded a basic construction contract for $726 million for the first Seawolf class submarine. In order to award the contract, which was $117 million higher than the budgeted amount, the Navy "borrowed" from other components within the SSN-21 funding line.

The most significant "borrowing" came from "change orders, hull, mechanical, and electrical, electronics, and propulsion equipment lines."

On May 2, 1989, the date of the hearing on the fiscal year 1990 shipbuilding and conversion budget, the Navy was asked about the estimated end-cost for the SSN-21 and was told the cost was the same as in the budget. In other words, close to five months after the basic construction contract was awarded, the Navy was reluctant to admit a funding problem of any magnitude existed. It was only shortly before the Senate began mark-up of the Department of Defense appropriations bill for fiscal year 1990 that the Navy made available detailed information concerning the cost increase.

A reprogramming was submitted to the Congress on December 15, 1989, requesting an increase in funding of $178.8 million for SSN-21. With approval of this reprogramming, the total amount of the first SSN-21 will be $1,906.4 million, approximately 10 percent higher than originally budgeted.

Why was the Navy so reluctant to admit there was a funding problem with this program?

Mr. CANN. Well, Mr. Dicks, first of all, I would like to clarify a couple of points.

First of all, with respect to the $1.9 billion, I have to clarify the cost with respect to the years.

The original requirement was that the Seawolf would be $1.6 billion in fiscal year 1985 funding and, of course, the money is in then-year funding.

The current——

Mr. DICKS. This is the lead ship, right?

Mr. CANN. That is right.

The current cost for the ship, as we see it, including the reprogramming that is up here, when you take it back to fiscal year 1985 dollars, is just barely—and I say barely—under $1.6 billion at this point.

So if you reconcile then year dollars back to fiscal year 1985, they come out to just under $1.6 billion.

That is the first point.

My understanding of this issue after looking at it in some detail is that they thought that they were going to solve the problem that they had under the ship cost adjustment process. They identified over a fairly lengthy period of time how they were going to do that, and in August, they tried to transfer the funds to do this and were told in November by the HAC/SAC conferees to submit a reprogramming action.

We finally got the reprogramming action out.

I understand, the view that I have been given—and we have discussed this at great length the other day—is that they were reluctant to put in the reprogramming. They thought they were going to handle it through the ship cost adjustment because that is the way it has been handled in previous years.

Mr. DICKS. Is it going to be $1.9 billion or higher than that? Is there anything you haven't told us today about additional costs beyond this?

Mr. CANN. There are certain fact-of-life issues that have to be looked at. Right now the contract is budgeted to target price and there are potential Government costs going to the ceiling. The potential Government costs of the contractor going to ceiling could be about $202 million. Further, there is certainly considerable uncertainty in future workload which could lead to changes in renegotiations for overhead, direct labor, material costs, et cetera.

I am not going to sit here and tell you that we know precisely what the end cost of the ship is going to be.

Mr. **Dicks**. Admiral Cooper, can you give us anything on this?

Admiral **Cooper**. I can't give you much more than what the Secretary said.

Mr. **Dicks**. Above the $1.9 billion?

Admiral **Cooper**. There are a lot of uncertainties between now and 1995 and there is a potential for problems to arise.

We are working hard to keep it down below that ceiling, Mr. Chairman.

SSN-21 DESIGN COSTS

Mr. **Dicks**. The latest selected acquisition report indicates the final cost of detail design for SSN-21 will be $222 million higher than the $333 million included in the budget.

Is the detail design contract a cost-plus fixed fee-type contract; and if so, why aren't you requesting reprogramming to cover this 67 percent cost growth?

Admiral **Cantrell**. The contract is a cost-plus, fixed fee contract. The $222 million that is identified are follow ship design costs and consequently not appropriate to be reprogrammed onto the lead ship.

That money is reflected in the budget for the downstream ship.

Mr. **Dicks**. Why is it tied to the first year contract?

Admiral **Cantrell**. Because the items of design are in support of follow ships, namely, modular construction, producibility, those things which, because with the expectation of more than one ship, are necessary to support the follow ships, not the lead ship.

All shipbuilding programs have a certain element of detailed design unique to the individual hull and it is that kind of work for follow hulls about which we are talking.

SSN-21 PRODUCTION COSTS

Mr. **Dicks**. Mr. Secretary, what would be the total cost of the first Seawolf if all current and potential liabilities are considered?

Mr. **Cann**. Again, I have to say that right now the current cost that we have projected is $1.9 billion corrected back to fiscal year 1985 dollars, just under $1.6 billion.

I can't tell you what the potential costs could be because they will be reflected in all sorts of changes that might take place as a result of changes in the shipbuilding business, if the Trident isn't procured in fiscal year 1991.

Mr. **Dicks**. When will the ship be built?

Mr. **Cann**. Out in 1995.

Mr. **Dicks**. They are starting now and they are in construction?

Mr. **Cann**. Yes and they are in design.

Admiral **Cooper**. You appropriated in fiscal years 1989—the contract was let in early 1989 and, in fact, they are now bending metal doing the construction. The ship will be turned over to the Navy in mid-1995. Then it will go through certain test procedures and then go into PSA. It extends over a seven-year period, so we are now counting all the design and everything done. We are essentially seven years into a thirteen-year program.

Mr. Dicks. What is the current cost estimate for follow-on SSN-21s and how confident are you that those cost figures will be achieved?

Mr. Cann. To be honest, I think that the issue on follow-on anything is going to be so dependent on the numbers that are built and other workload that is in the various shipyards is going to make a big difference as to what the precise dollar amount is.

Mr. Dicks. What did you request in the budget this year?

Mr. Cann. The budget for 1991——

Admiral Nyquist. Mr. Chairman, $3.482 billion, for two, so that is $1.74 billion. That is——

Mr. Dicks. Is that just a guess?

Admiral Nyquist. No. That is money in the budget, but it includes advanced procurement.

Admiral Cooper. It talks to the SSN-21 and it includes full funding and advanced procurement for submarines that will be requested in follow-on years.

We will have to get you the exact number that is in there.

Right now, the piece of paper I have says that in fiscal year 1991, the money in there for the end cost of two submarines is $3.018 billion.

[The information follows:]

The end-cost of the SEAWOLF lead ship in the FY 1991 President's budget is $1,905 million, or $1.59 billion in FY 1985. This includes $632.6 million in advanced procurement from FY 1988 and FY 1987 and the $178 million reprogramming request. The end-cost of the two FY 1991 SEAWOLF follow-on ships in the President's budget is $3,008 million, or $1,504 million each. This includes $665.5 million in advanced procurement from FY 1989 and FY 1990. The TOA requested for FY 1991 is $3,482 million, which includes advanced procurement of $1,139 million for the six ships requested in FY 1993.

Mr. Dicks. The rest is advanced procurement?

Admiral Cooper. I believe that is correct.

Mr. Dicks. So $1.6 billion is what we think it is going to be——

Admiral Cooper. We think that the initial submarine will cost $1.6 billion in fiscal year 1985 dollars and as transmitted by Mr. Lehman when he was Secretary, we are working to make the fifth and follow-on submarine come in at $1 billion in 1985 fiscal year dollars.

It is a complicated process. We were trying to estimate in 1985, the vendors base that we would have, however, it is a constantly changing problem. We try to estimate eight years before we see the submarine. We really do want to meet our goal for the fifth submarine and beyond of $1 billion fiscal year 1985 dollars.

That is the best information that I can give you now.

Mr. Dicks. Give us as much as you can.

[The information follows:]

The fifth and follow SSN-21 ships will cost approximately $1.3 billion, which is at the $1.0 billion (FY 1985$) cost goal established for the fifth and follow ships. The Navy can make no guarantees that further increases in the price of SEAWOLF follow-on ships will not occur. Considerable uncertainty exists in the future shipyard workload. Cutbacks in naval shipbuilding could lead to higher overhead, direct labor, and material costs. It should also be noted that in any first of a kind development of this magnitude, there are generally unanticipated problems. However, the Navy considers this program to be proceeding on track.

SSN-21 REPROGRAMMING

Mr. **Dicks**. Is this reprogramming you have asked for urgent at this point?

It took a little while to get it up here.

Admiral **Cooper**. Understand that the whole process was one that we went through very carefully. The Secretary of the Navy made the decision to sign the contract.

We knew we would need more money to finish the program, but not the exact amount. The ship cost adjustment process, we thought, would help us. We would come and say we want to shift money around. We were told, "We want to do it differently, please come in with a reprogramming."

When we got the information, we came in with the reprogramming in December. We really do need the money for cash flow purposes.

Admiral Cantrell can speak to that more than I.

Admiral **Cantrell**. When the problem was recognized in January, it was known that in order to support the orderly construction of the lead ship, we needed to buy government-furnished equipment, equipment for which the Government is liable, in late fall, mid-winter of 1989.

It was expected that the Ship Cost Adjustment process would produce the money in time to exercise the contracts for government furnished equipment. That money was not forthcoming.

The program manager is developing work arounds to protect Government liability against extra costs because he will not be able to deliver the equipment to the shipbuilder in a timely manner.

If we do not produce the Government's responsible equipment in a timely manner——

Mr. **Dicks**. You can't do it without the reprogramming?

Admiral **Cantrell**. We cannot. The equipment will go to the ship late and at greater cost.

Mr. **Dicks**. I would hope in the future if we have a problem like this, it doesn't take us 12 months to get it up here.

Mr. Miller?

TRIDENT MISSILE CAPABILITY

Mr. **Miller**. Thank you, Mr. Chairman.

A proposal for the Strategic Arms Reduction Talks has been advanced that assumes Trident submarines would have 18 operation missile tubes on 21 accountable submarines. How would the Navy reduce the number of tubes from 24 to 18? Would it be necessary and satisfactory with those that are working on the START program if you just merely say they are out of operation and not loaded?

Admiral **Cooper**. No.

The way that the START would work is that they would come up with a limit and then the United States would make a determination as to where those reentry vehicles would be on what warheads. We do not agree that you would want to send a Trident submarine to sea with six empty tubes. That proposal has been made by various people around the country, it is not one with which we agree.

The original START agreement, as being proposed would list 4,900 reentry vehicles being allowed on various missiles. If we had 21 submarines that still is 4,000-plus RV's, because you have to count a certain number for each tube that you have. Therefore, each Trident would have 192. It would count for 192 no matter how many RV's you had on each missile.

The Navy feels they should have 21 Trident submarines operating. The DOD has to make the distribution decision how they are going to divide RVs up between ICBMs and SLBMs and how to meet the ultimate limit of 4,900.

Mr. **Miller**. I understand that the Department of Defense would need to do this, and you are saying that the tubes should be usable if they are on the submarine?

Admiral **Cooper**. They are always countable. Whether we have anything in there or not, they will count.

Mr. **Miller**. Are you being heard by the people who will make the decision for the START agreement?

Admiral **Cooper**. I would say to you that we may be the silent service, but we are not the modest service, so we are certainly being heard; yes.

600-SHIP NAVY REQUIREMENT

Mr. **Miller**. We spoke about a 600-ship navy. We are constantly hearing about it.

If we remove 75,000 troops from Europe, remove troops from Japan and Korea, will we need that 600-ship Navy if we have—I understand there are two sides to this coin; that also some of the equipment that would be coming back, we need additional ships to move it back again if we have an international problem.

What is your thinking on the 600-ship Navy?

Mr. **Cann**. Well, the goal of 600 ships has been there for some time. If we pull back and want to maintain our posture in the world, we are going to have to be able to get back over there. Not only that, nobody seems to have changed any of the requirements on the Navy to do whatever they do around the various oceans.

So it would appear from the way things are going that nobody has said anything about reducing any of the Navy's missions and by budget cutting and various other sundry activities we are being forced to reduce the size of the Navy without concomitant reductions in requirements.

Mr. **Miller**. This committee will be looking for ways to reduce, not that we want to cut out, but the savings in the defense, as most people in the House consider that there is a savings because we will not need as many defense dollars.

This committee is well aware that you need money, but the peace dividend has already been spent as we listen to the people on the House Floor, and I guess what we need to do is to find the lowest priority items and consider those items to be put off for some time. The peace dividend is one thing that not only on the House Floor, but in our congressional districts, we hear about. There isn't going to be the size of the peace dividend that so many people are looking for. We have people that say we could get along with one half of the dollars that we spend for defense and that isn't going to be a practical outlook, we know that. We will have to have some information from you that will help us talk about the 600 ships and whether they are needed, because many have already mentioned about the troops coming home and, therefore, we should be able to dock some of the ships.

MINE COUNTERMEASURES SHIPS

In another area, that of the MCM-1 class mine countermeasure ships, how do we stand on the ocean-going mine sweepers at the present time?

That was a problem we had a few months ago or a year now, I guess, in the Persian Gulf. We apparently did not have the minesweepers that we needed.

Mr. Cann. First of all, there has been a longstanding situation that we have had with respect to minesweeping in general.

The policy of the Navy for a long time, because of our NATO commitments, was that we would take on for the U.S. Navy what we call deep-water minesweeping and in general we would rely on our NATO allies for shallow water minesweeping. Of course, the problem that occurred in the Persian Gulf was not a NATO activity in general. Eventually, they all came in and helped. I have the right person to discuss this in some detail, Admiral Nyquist was there at the time.

Admiral Nyquist. Congressman Miller, you are absolutely right that we have had a mine countermeasures requirements problem. It is a tribute to those 35-year-old minesweepers with their iron men that they performed so well in the Persian Gulf. That was a tough role for them to take on.

In the meantime, we have begun construction of what I believe, and I think most people will agree, is the most capable sea-going mine countermeasure ship in the world.

There are three in commission now; the total program is for 14. They will be followed by our new glass reinforced plastic-hulled coastal minehunter, which we will be building 17 of those. So we are now embarked on a very robust program that is going to get us back to the top of the world where we ought to be in mine countermeasures capability. Those ships are very, very capable, both minehunters and mine killers. You don't have to spend countless hours minesweeping as you did 20 or 30 years ago because now we have the capability to find the mines, identify them and tc surgically remove them.

Mr. Miller. To get away from the bulk steel, you say the hulls will be made of plastic?

Admiral Nyquist. Yes, sir.

We have built wooden minesweeping hulls for years because of their non-magnetic properties. On the other hand, wood is subject to a lot of marine growth and marine worm burrowers and a lot of things that cause us to spend a lot of money keeping those hulls up. With glass reinforced plastic, you get away from that entirely. It is a better, longer-lasting and lower maintenance hull.

Mr. Miller. I remember a few years ago that we had either three or four wooden hulls started, and one broke in two before it was put into the water, as I understand it.

Are we using the wooden hulls in any way whatsoever?

Admiral Nyquist. Yes, sir.

The 14 mine countermeasure ships built in Sturgeon Bay, Wisconsin, by two shipbuilders are the last of our wooden minesweepers. That was an unfortunate accident, but easily repaired. Those are good ships, but for the long run, it is better to move away from wood because it is just subject to so many problems when it is in the water.

USS ENTERPRISE OVERHAUL

Mr. Miller. The ENTERPRISE is currently scheduled to be refueled and I understand that it was refueled in 1970 the last time. You had spent fuel rods at that time that you would pull the rods out. Where are they stored? It is a nuclear rod. We have a great problem with electric utilities as an example where they are storing in place on the site of the spent rods because right now it is still a big problem.

Where will we put them?

Mr. Cann. I was prepared to answer almost any question on the ENTERPRISE except that one.

We will have to take that question for the record.

Mr. Miller. I would appreciate that.

Thank you.

Thank you, Mr. Chairman.

[The information follows:]

Naval reactors are the responsibility of the Naval Nuclear Propulsion Program, which is a joint Department of Energy and Department of the Navy organization. When naval nuclear propulsion plants are refueled or defueled, the irradiated fuel is sent to a Department of Energy facility in Idaho for inspection and to recover unused uranium for use in other DOE programs.

SHIP MAINTENANCE TRENDS

Mr. Dicks. Admiral Lang, you testified in some detail before the House Armed Services Committee on the trend in Navy ship repair philosophy. Your testimony notes that in fiscal year 1979, 78 percent of ship maintenance was performed as part of regular overhauls, and only 22 percent as part of restricted availabilities. By fiscal year 1989, that figure had nearly reversed to 68 percent restricted availabilities and only 32 percent as part of regular overhauls.

You noted that on some new classes of ships, there are no regularly scheduled overhauls and that the overall percentage for nonnuclear ships was even more tilted toward restricted availabilities.

What are the basic reasons for this shift in maintenance? Is it budget-driven or dollar-driven? Were there studies done? Where did it come from?

Admiral Lang. Sir, it started in about 1972–73 in the submarine force where, as the nuclear life of the fuels were extended, the question was asked, why are we taking these ships into the shipyard to overhaul them?

There was a large effort at that time. It started off with one ship, then there were three, and then a whole class and eventually, as Admiral Cooper mentioned about this DMP process, that has evolved, so we have, in fact, completed 12 years between regular overhauls in the submarine force.

With that program coming along, the rest of the surface forces at the same time had similar kinds of programs and it has been an evolutionary maintenance strategy.

What do you get out of it? You get more time available for the fleet commander to have a ship ready to fight the war, and that is the biggest thing you get. In addition, in some of them, the costs are at least comparable. In some of them, there are significant savings, but to make the statement across the board that those maintenance strategies save you money is in my experience not accurate, sir.

Mr. **Dicks**. So we are not saving any money; we are just doing more frequent——

Admiral **Lang**. You are doing it smarter.

In fact, with a shorter availability, the crew stays better trained.

You can better define the work package instead of getting into the long availabilities. It is a more effective, efficient way to maintain our Navy.

Mr. **Dicks**. Have you done any studies on this to look at long-term costs?

Admiral **Lang**. There have been many studies in the past, sir. I haven't seen recent ones done. GAO, every year, goes out and looks at our maintenance, what we think it is going to cost, what the final costs are. There have been past ones, sir. I haven't seen any new nor have I, since I have been in my job, asked for any studies.

Mr. **Dicks**. I am told by people in the field that frequently repairs have to be made on incorrectly performed work, from restricted availabilities, during a regular overhaul.

Does this, in fact, take place?

Admiral **Lang**. I have not received such reports, sir.

Mr. **Dicks**. Has there been any effort to properly reflect additional work that has to be done on major overhauls to overcome problems from restricted availabilities? Is that happening?

Admiral **Lang**. Not to my knowledge.

Admiral **Cooper**. You constantly have rework when you are going through any process.

In the shipyards, they will have rework and I think they are doing a much better job in the last few years of trying to identify that and seeing what they can do to make the process work better. It is a quality assurance problem. There is some rework that you will experience each time.

Mr. **Dicks**. Do you expect the trend to restricted availabilities to continue, and if so, what would be the final percentage split between regular overhauls and restricted availabilities, both for the fleet as a whole, and for non-nuclear ships in particular?

Admiral **Lang**. My projection would be that for those ships that you are able to do that type of a maintenance strategy, they will continue to increase.

For the final resolution of where the fleet would be, I haven't sat down and thought out exactly what the split is, but where you are today, you can just drive that forward——

Mr. DICKS. Will you have a day when there are no overhauls?

Admiral LANG. No, because you will always have to do nuclear refuelings. The new SSN-21 is supposed to be done one time during the life of the ship instead of the past ones where there has been several. Until you get that, there is always going to be a requirement to refuel the cores and that will require an overhaul. The other thing you are going to get into is what will be the modernization requirements and that is what drove the 688—that is why we called it a depot modernization period.

Mr. DICKS. Mr. Secretary, did you have a comment?

Mr. CANN. I was going to point out that clearly with the technology improving, there are several aspects. For example, they are not using up core life as fast as they were. The other issue is that with modern electronics being what it is, it is a lot easier to make modernization improvements. It doesn't require ripping the ship apart to put these things in. It allows you to get the improvements into the ships much more quickly instead of having them sit around four or five years waiting for an overhaul.

SSN-688 PROGRAM

Mr. DICKS. During 1989, the delivery dates for 20 Los Angeles class submarines were adjusted 4 times. In every case, the changes resulted in delays of delivery ranging from 1.5 months to 23 months. Nine of the submarines will be delivered more than one year later than previously planned and five will be delayed over twenty months. What is the problem which results in such significant changes?

Mr. CANN. It is a complex issue. This has been Admiral Cantrell's responsibility for some time.

Admiral CANTRELL. Congressman, the delivery dates you refer to are the contract delivery dates of the submarines being constructed at Electric Boat and Newport News. Contract delivery dates are the primary reasons schedule changes have occurred. These ships were awarded after aggressive competition and as a result the shipbuilders proposed contract delivery dates far more optimistic than ever achieved in the previous 688s. The contract delivery dates have been adjusted as the actual ship construction comes closer to a statistically established normal average.

Also, the contractors underestimated the complexity of the improved 688 and did not make allowance for that complexity. The Government also contributed to the delay in that there was some late and defective Government-furnished information relative to the improved 688.

But the single largest common contribution is the aggressive optimistic contract delivery dates. In the case of Electric Boat, they suffered an almost four-month strike and the rehiring of people after the strike did not meet their expectations. They did not immediately resume pre-strike productivity, so it was more than a four-month delay.

Mr. **Dicks**. Have there been operational problems caused by these delays?

Admiral **Cantrell**. There have been some adjustments that the fleet has had to make to meet operational commitments when ships have been delayed in the post shakedown availabilities or in the delivery, but the program manager has kept both the CNO and the fleet advised of what a realistic delivery date is and the planning has been based on the Navy's estimate.

Admiral **Cooper**. There are operational problems. The force commander plans about a year ahead how he is going to use various submarines, so he is planning on one coming out of a yard at a certain time. When that ship slips, that gives him operational problems and it is something they have to work around.

Mr. **Dicks**. If they give you an optimistic number, don't you call them and say we don't think you can do this?

Admiral **Cantrell**. We cannot arbitrarily change the contract delivery date.

We enter into discussions and it is not a particularly good tactic on the part of the Navy to tell them we really don't think they can perform that well and try to cause them to give us an unrealistic date in the other direction. The consequences of competition cause very optimistic schedules and prices, and we, the Navy, feel that if the contractor wants to make a shot for it, give him every support and opportunity to do so.

However, the laws of nature are such that in the end the ship takes about historically as long as the statistically valid curves show.

It is very rare, particularly if you have the history for 30 ships, that the subsequent ship is very far from the historical data on schedule or cost.

Mr. **Dicks**. In addition to moving $176.5 million into the fiscal year 1984 and 1985 programs last year without formal congressional notification, you are now requesting reprogramming of $151.6 million to cover additional requirements in the 1984, 1985, and 1986 SSN-688 programs.

What is going to be the additional cost of the ten submarines of the 1987, 1988, 1989, and 1990 programs, some of which have delivery delays of up to 23 months?

Admiral **Cantrell**. Just to clarify on the introduction, of the $171.6 million, $120 million of that $171.6 million is expiring SCN funds which do not require notification of Congress when they are moved. The remaining $52 million or so is included in the reprogramming which is currently before you which, as in the case of the SSN-21, is urgently needed. Those dollars in the $151.6 million which were processed through the Ship Cost Adjustment process discussed earlier are needed next month to support cash flow requirements.

Mr. **Dicks**. Have all the other committees approved that reprogramming? Are we the only one that hasn't approved it?

Admiral **Cantrell**. To my knowledge, none of the committees have taken action on it, but from our standpoint it is urgent in that we will start a new ship's post shakedown availability next month. It will cost more and be delayed because of the absence of this money for cash flow.

Mr. DICKS. What about the additional cost of the ten submarines?

Admiral CANTRELL. The final cost estimate of the 1987 through 1990 ships is that which was reflected in the fiscal year 1991 President's budget.

I can either read them out now or provide them for the record.

Mr. DICKS. Tell us what they are.

Admiral CANTRELL. For the four ships in 1987, our estimate of their cost is $2.48746 billion.

The 1988 fiscal year, three 688's is $1.976602 billion.

For 1989, two ships, $1.546569 billion, and for the last and final one in 1990, $964,100,000.

Mr. DICKS. Are any of those increases over the previous budget?

Admiral CANTRELL. I will have to provide that for the record.

I did not compare it against the previous budget.

I am sure the ship cost adjustment that it probably does reflect an increase.

Mr. DICKS. Provide that for the record.

[The information follows:]

COMPARISON OF SSN-688 END COST ESTIMATES, FY 1990 VS. FY 1991 PRESIDENT'S BUDGET

[Dollars in millions]

Fiscal year	End cost fiscal year 1990	End cost fiscal year 1991	Cost difference
1987	$2,503.4	$2,487.6	-$15.8
1988	1,877.8	1,976.6	98.8
1989	1,559.1	1,546.6	-12.5
1990	1,093.8	964.1	-129.7
Total	7,034.1	6,974.9	-59.2

ATTACK SUBMARINE REQUIREMENTS

Mr. DICKS. The Navy has often stressed a requirement for 100 attack submarines.

How many attack submarines does the Navy currently have and how many will you have in 1995?

Admiral COOPER. Today I have 92 attack submarines. One is a diesel submarine. In 1995, I expect, assuming the various numbers we are looking at now, I will have about 92 or 93.

I would also like to point out that with ships being put out of commission and at a rate of production of two or three new SSNs, that in 1999, I will have 80 plus or minus a couple. In other words, because it takes six to seven years to build a submarine, in 1995, you are seeing what is coming on from ships already appropriated and authorized to build. The level will be about the same in 1995, but in 1999, I will be down to about 80 plus or minus one or two submarines.

Mr. DICKS. The Navy is planning to decommission eight SSN's in 1991. Why are you decommissioning submarines that in some case have ten years remaining of their nominal 30-year life?

Admiral COOPER. Six of those eight will have approximately two-plus years left after they go through an expensive overhaul. There are two others, one of which will have four years and one six years left in their normal thirty year-life time. Then take into account that the overhaul would be two years in length. So of those eight—six of those ships would average two-and-a-half years left after their two-year overhaul and those are old submarines. The other two, one would have four years and one six years left after a two-year overhaul.

You pay for those with high outlay money and the decision was made to decommission those.

Mr. DICKS. Do we have to spend a lot of money in advance procurement for the materials that are used in the overhauls?

Admiral COOPER. Yes.

Of course, there is some advanced procurement also.

I can't tell you what that amount is now.

Mr. DICKS. Give us that for the record.

[The information follows:]

There are $11.3 million associated with advance procurement, however, the advance procurement end items can be used on SSN-688 Class submarines.

Mr. DICKS. You talked about the cost avoidance when we don't do the overhauls, but there is also, as I understand it, some costs that have already been incurred.

Admiral COOPER. Yes, sir.

Some of the items from cancelled overhauls could be put on follow-on submarines when they have overhauls.

SOVIET SUBMARINE CAPABILITY

Mr. DICKS. Under the circumstances, with the changing threat out there, do you think that it is prudent to have fewer than 100 attack submarines—because apparently that is where we are going.

Admiral COOPER. No doubt that is where we are going.

As I look at our submarines and the threat, the Soviet Union's submarines are very competent and quiet and they are building a lot of them. We have just completed a study showing that if the threat is what intelligence tells us, then 100 submarines is about what we need. From there on, you are into fiscal constraints. Just as the Navy will not be at 600 ships, eventually it looks like we will be between 80 and 90. Do I think the threat warrants them? Absolutely.

Mr. DICKS. Generally, are the Soviets operating their submarines any differently?

We have heard that the Soviet Navy is operating closer to home. Have we seen any difference in the operation of their attack or ballistic missile submarines?

Admiral COOPER. In both cases, we have seen some differences. The ballistic missile submarines are not deploying the long distances as before because they have increased range with missiles. We have also seen, during the last three years, a decrease in the number of attack submarines that, in fact, venture out into various places. If they go to the Mediterranean or whatever, the numbers have been less. But they have continued to build submarines at a high rate. They put into the water nine submarines last year, four of which were diesel.

Mr. DICKS. Are diesel submarines classified as attack?

Admiral **Cooper**. They are battery-operated submarines that they build, some to sell and keep others around. They are very competent around the homeport. We don't have diesel submarines because we want the mobility to project.

We have seen some lessening of operations. However, if they have these very competent submarines, they have the potential there to get out into all ocean areas. Those submarines are operating, but they are just operating closer to home.

Mr. **Dicks**. How many attack submarines do the Soviets have?

Admiral **Cooper**. Right now it appears 130 or so.

Mr. **Dicks**. How many are nuclear?

Admiral **Cooper**. 130 are nuclear attack submarines. They have quite a few diesel attack submarines; 80 or so. They are old and they have claimed they are going to decommission them. The 25 nuclear submarines they are going to decommission are very old and giving them lots of maintenance problems.

You may have seen a fire reported in the press—they showed a submarine with a lot of smoke. That was a fire, not a drill. They have problems with older submarines and those are the ones they are going to decommission. As a result, the quality of their submarine force will improve.

Mr. **Dicks**. How many submarines did they start building last year?

Admiral **Cooper**. We don't know.

All I can go on is the fact that last year they put in the water nine submarines.

This year, intelligence tells me they will put in ——— or ———.

Mr. **Dicks**. Some of those will be sold?

Admiral **Cooper**. The diesel submarines. Kilos—they will sell one or two probably.

My estimate is they keep about half of what they make right now.

OVERHAUL SCHEDULE

Mr. **Dicks**. The fiscal year 1991 overhaul schedule includes regular overhaul of the USS STERETT, CG-31, on July 1991 through August 1992 and the USS JOSEPHUS DANIELS, CG-27, on May 1991 through June 1992.

The overhaul work would be competed, therefore, the shipyards to do the work have not been determined. Can we defer the work on these ships until October 1991, Mr. Cann?

Mr. **Cann**. First of all, I think the issue gets to be one of crew size.

Admiral Nyquist?

Admiral **Nyquist**. Mr. Chairman, certainly we can, but the problem these ships face is that the JOSEPHUS DANIELS will lose more than five months time in preparation for her next deployment and that makes it tough on people and tough on schedules. So we would prefer to see her stay where she is.

In the case of REEVES, she is an overseas, homeported ship. That means she is not going to get needed maintenance for three months and that is never preferred.

Mr. **Dicks**. Are we talking about the same ship?

I was talking about the STERETT.

Admiral **Nyquist**. The STERETT is overseas homeported and she will delay needed maintenance for a three-month period.

Our preference would certainly be, because you buy things in advance and you get all the planning done, that there is a lot of planning that has already gone into those overhauls, we would prefer to see them go on time.

Mr. **Dicks**. What is the estimated cost of each of these overhauls? Put that in the record.

Admiral **Nyquist**. Maybe Admiral Lang has it.

Mr. **Dicks**. If you have it, put it in.

Admiral **Lang**. It is $62.1 million for the CG-27. The CG-31 was $56.5 million, sir.

Mr. **Dicks**. The Navy plans to inactivate 25 ships in fiscal year 1991 and is requesting $359 million for this purpose. Are there less expensive alternatives or options to inactivate ships or is this just what it costs to do it?

Mr. **Cann**. What it costs to do it, sir.

You have to take off certain things, preserve certain things and move the ships, do all the preservation work and so forth.

Mr. **Dicks**. Is this in line with what it has cost us in the past? Just doing the quick math, it looks like $12 million a ship. Is that what it costs to mothball a ship or inactivate it?

Mr. **Cann**. I am not sure I can answer that.

Mr. **Dicks**. It depends on which 25 ships?

Admiral **Cooper**. That is probably correct because for a nuclear submarine, it will cost $20-plus million.

Admiral **Lang**. Also there is a couple battleships in that one, too.

Mr. **Dicks**. Provide for the record the maintenance and modernization funding levels for the active force ships scheduled to be inducted into shipyards the fourth quarter of fiscal year 1991.

[The information follows:]

4TH QTR. FY 1991 SHIP MAINTENANCE AND MODERNIZATION AVAILABILITIES

[Dollars in thousands]

Hull	(O&MN) repair	(OPN) mod	Total
Atlantic Fleet:			
AE-27	$8,433	$403	$8,836
AE-28	9,915	991	10,906
AFS-6	5,729	947	6,676
AOR-4	7,195	3,046	10,241
AS-39	7,100	1,167	8,267
CG-58	3,873	638	4,511
CVN-71	33,047	9,610	42,657
DD-968	2,909	141	3,050
DD-980	3,643	0	3,643
DD-987	2,798	0	2,798
FFG-39	2,151	0	2,151
FFG-58	2,605	331	2,936
LPD-1	9,364	669	10,033
LST-1194	7,014	1,453	8,467
SSN-615	7,990	0	7,990
SSN-750	10,078	265	10,343
SSBN-628	9,568	0	9,568
SSBN-629	9,718	0	9,718
SSBN-654	9,782	0	9,782

4TH QTR. FY 1991 SHIP MAINTENANCE AND MODERNIZATION AVAILABILITIES—Continued

[Dollars in thousands]

Hull	(O&MN) repair	(OPN) mod	Total
Subtotal	152,912	19,661	172,573
Pacific Fleet:			
AOE-2	10,144	1,762	11,906
CG-31	37,548	1,086	38,634
CG-53	7,336	1,085	8,421
CG-54	8,561	0	8,561
DD-964	6,396	491	6,887
LKA-116	7,549	1,731	9,280
LST-1189	3,967	203	4,170
Subtotal	81,501	6,358	87,859
Grand total	234,413	26,019	260,432

Mr. DICKS. We will have a series of other questions that we will ask for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

SHIPBUILDING INDUSTRIAL BASE

Question. Secretary Cann, as you know this committee has been very concerned about the decline in the shipbuilding industrial mobilizaton base. During the decade of the 80's 146 small and large shipyards have closed and 30 of those were large enough to have been considered as mobilizaton capable.

So it is encouraging to see that your prepared statement also recognizes this need. You say that "As the Navy work available to both the public and private sector decreases in the 1990's, we will need to monitor the competition process carefully to be sure it enhances both efficiency and maintenance of the industrial base."

Are there ships in your five year plan which might qualify as contributing to the maintenance of the industrial base?

Answer. Every ship in the five year plan contributes to maintaining the ship production and ship supplier industrial base by sustaining direct employment levels of skilled craftsmen in building ships and in manufacturing equipment and materials installed in ships. If ship quantities are reduced, it will cause erosion of the shipbuilding industrial base.

T-AGOS 23 PROGRAM

Question. The T-AGOS 23 class ocean surveillance ship is the first of a new generation of SWATH (Small Waterplane area twin hull) T-AGOS ships. Can you tell us what the status of that program is?

Answer. We are currently in the source selection process to pick the lead shipbuilder for this class. We anticipate awarding the lead ship production contract this summer.

FAST SEALIFT PROGRAM

Question. Every witness who has appeared before our committee for years has expressed a concern about fast sealift, and last year this committee initiated a fast sealift program which the Navy has resisted.

Does the Navy concur with the CINCS about the need for more fast sealift, particularly in view of the consensus that we will be bringing many of our troops home from overseas?

Answer. All significant sustained operations in forward theaters depend on sealift. In any future war, more than 95% of petroleum products and more than 90% of equipment and logistics material will be lifted to forward theaters in ships. Sealift is a very cost effective form of strategic mobility, and can be adapted to short warning times by prepositioning afloat or longer warning times by concepts ranging from dedicated ready reserve forces through merchant marine ships in daily commercial service.

The number, configuration, and peacetime uses of sealift ships are very dependent on the amount of land, air, and sea services forces, equipment and logistics material available to be lifted, and are also very dependent on the specific scenarios envisioned regarding warning time, distance to the theater, magnitude of the threat, duration and intensity of conflict, and number of simultaneous conflicts to be supported. For the planning assumptions that existed in 1988 and earlier, we had well in excess of required sealift capability in container ships and tankers. In unit equipment (tanks, trucks, helicopters, etc.), we met about 85% of the required sealift capability in militarily useful roll-on/roll-off ships.

Since then there have been dramatic changes in the world. These world events will likely change the size of the land, air, and sea services to be supported, and will also likely change scenario planning assumptions. Depending on the overall magnitude of force reductions and deployment sites of the forces that remain, a reduction in overseas forces may not necessarily result in more forces stationed in the United States. These changes will affect the amount and kind of sealift that would be needed. New operational requirements for sealift to reflect this rapidly changing world have yet to be established.

In the naval recovery program of the past decade, we took the initiative and made significant investments, exceeding seven billion dollars, to improve our strategic sealift capability. This very successful sealift effort acquired eight fast sealift ships, 13 maritime prepositioning ships for three Marine Corps Brigades, two hospital ships, nine auxiliary crane ships, two Marine Corps aviation logistics ships, five sealift tankers, and expanded the Ready Reserve Force to more than 90 ships. We also have 12 prepositioning ships for Army and Air Force material originally acquired in the 1970s. This comprehensive sealift program significantly improved our national strategic mobility posture, provided seagoing jobs to American mariners, and preserved a sector of the shipbuilding industrial base hard hit by lack of commercial shipbuilding.

Furthermore, in 1989 the President established a national sealift policy to rely primarily on the commercial merchant marine to meet our strategic sealift needs. Ships built with private venture capital for commercial service reduce the cost to the Government and the taxpayers in supporting our strategic mobility requirements.

Given rapidly evolving world events, the existence of more than 100 dedicated military sealift ships, and the policy of relying primarily on the commercial merchant marine, we may not now need to continue to increase our dedicated military sealift ships through Government production programs. We clearly need sealift, but we may not now need new Government funded programs.

Question. In an effort to bring the defense budget down to politically acceptable numbers, some in the Congress have suggested reducing our submarine forces, both the Trident and the SSN-21. What would be the impact of reducing your requests for TRIDENT and SEAWOLF?

Answer. Reducing the procurement of both the SEAWOLF and TRIDENT submarines would have a severe impact on our ability to maintain undersea superiority and power projection capability against a modernizing and growing threat; our ability to maintain our strategic posture in a time of uncertain and rapidly changing times; our ability to maintain our already fragile submarine industrial vendor base; and, would significantly increase the cost of both shipbuilding programs.

With regard to the SEAWOLF, there has been no change in the current or future Soviet submarine threat that would justify reduction of our current procurement plan for this highly capable submarine. Recent Soviet announcements regarding submarine force level reductions must be considered with respect to how their overall force capability will change in the next decade. The Soviet plan to decommission their older SSN classes will reduce their force numbers; however, it will do little to reduce their submarine force capability. In fact, these reductions, when coupled with their continued building rate of new submarines of significantly advanced classes, will produce an end-of-decade submarines force that is significantly more capable, although smaller in size. Present intelligence estimates verify that the Soviets are still firmly committed to continued attack submarine development and production.

Although the current Soviet regime's policies are welcomed as they have significantly reduced world tensions, we must remain aware of the ability to rapidly reverse such policies. An adversary who has the potential to sever our SLOCs through a large, well trained, and modern submarine force (as the Soviets have), must be deterred by an equally capable force. Today our submarine force meets this challenge. However, our existing SSN-688 Class of submarines has exhausted its growth capacity and can not be further improved to handle the future threat. Thus, in order to ensure our ASW capability and undersea superiority in the future, we must introduce the highly advanced SSN-21 Class of attack submarines.

Another factor which has to be considered in determining the need for the SSN-21 is the role of attack submarines in containing regional conflicts. The President's National Security Strategy of 1989 states we should expect regional conflicts to proliferate as we shift from a bipolar to multipolar world. SSNs can be used to provide intelligence, surveillance, special forces insertion, and cruise missile capability. In addition, as Third World Nations obtain more sophisticated weapons, including modern diesel submarines, the submarine role in regional conflicts will become even more important. The SSN-21 has been designed to optimize the inherent submarine capabilities of stealth, mobility, endurance, and firepower, which will enhance its role in naval power projection and regional conflict containment in the 21st century.

With regard to the TRIDENT program, one must not forget that the strategic submarine force has been a cornerstone of our strategic deterrent by virtue of its capability, survivability, and reliability, for many years. The ongoing modernization of the strategic submarine force is absolutely vital to our national security as it will enable us to safely weather the period of strategic and defense uncertainty which lies ahead. The TRIDENT submarines which are being requested will replace aging Poseidon and TRIDENT I backfit submarines when they reach mandatory retirement towards the end of this decade. Reducing procurement of TRIDENT submarines at this time would send a dangerous and destabilizing signal to the world that we are not committed to this vital strategic program.

Another significant effect of a reduction in both SEAWOLF and TRIDENT procurements would be the resultant further erosion of the submarine industrial base. This base is composed of the submarine producing shipyards and hundreds of smaller vendors which not only produce materials, components, and systems which are essential for submarine construction, but also produce many of the critical components required for submarine and nuclear safety. Over the last several years, the reduction in submarine procurement, coupled with the high cost of maintaining production capability and long construction times, has resulted in a significant shrinkage of this vital national asset. Production decisions made today will not only determine the attack and strategic submarine force levels in future years but will also dictate the industrial capacity of our nation to maintain a submarine force of any size.

Finally, reducing SEAWOLF and TRIDENT procurements would significantly increase the cost of both programs. These cost increases would be due to the combined effects of spreading shipyard overhead over fewer units, higher material prices stemming from the shrinking submarine vendor base, higher government-furnished equipment (GFE) costs resulting from cancellation of quantity buys, and additional man-hours of labor required due to the loss of learning from breaks in production. In addition, as a result of lower total shipyard production rates, substantial cost increases would be realized in both the SSN-688 and CVN programs.

In summary, reducing SEAWOLF and TRIDENT procurements at this time would jeopardize our future ability to maintain undersea superiority in the face of a modernizing and growing threat (both Soviet and Third World), and would threaten our strategic posture which has provided remarkably stability over the past decades. In addition, we would critically strain and possibly collapse our nation's fragile submarine industrial base and would significantly increase the cost of these and other shipbuilding programs. Continuing with the present procurement strategy of the SEAWOLF and TRIDENT programs will enable the United States to maintain its historic undersea superiority and proven strategic posture with the most economic use of today's strained fiscal resources.

[CLERK'S NOTE.—End of questions submitted by Mr. Young.]

Mr. DICKS. Mr. Livingston has further questions and those will be placed in the record.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follows:]

TRIDENT/SSN-21

Question. Provide details on the impact to the main subcontractors and other venders if funding was not provided for a TRIDENT this year and only one SSN-21 was funded?

Answer. Based on one SSN-21 per year vice the proposed building rate in the FY 1991 timeframe, the SSN-21 unit cost will increase by 40 to 60 percent. Additional significant cross program impacts will occur on the TRIDENT and CVN programs. The magnitude of the cost impacts on these programs is largely affected by which shipyard the single SSN-21 is awarded to. Cost impacts are driven by the industry's ability to control overhead costs and productivity during very low rates of prodution.

At this low construction level, at least one shipbuilder would be expected to leave the submarine construction business leading to a permanent loss of approximately 10,000 jobs, as well as massive layoffs at the remaining shipyard. Reestablishing the workmanship and quality-aptitude needed for constructing ships and their components to the requisite specifications after such a major layoff would be an enormous challenge, possibly beyond our reach.

Similar losses could be expected in the supporting industrial base, as it would have to shift to other markets in order to survive. Deletion of these ships will extend lead times and increase costs to procure components from vendors, resulting in longer construction times for all submarines. Lower build rates of any submarine class will adversely impact quantity buys for everything from steel to reactor components, causing cost increases in Government Furnished Equipment (GFE) and Contractor Furnished Equipment (CFE). Our vendor base in the area of pumps, valves and large diameter pipe, for example, is diminishing due to the general decline in shipbuilding. This is particularly true in the submarine community with its unique requirements for quieting, high pressure fluid systems and steam propulsion. A further decline in the shipbuilding program will decrease competition and potentially limit some major components to sole source procurement.

AOE PROGRAM

Question. Provide details and an explanation for the reprogramming increase of $27.9 million planned for the FY 1990 AOE, as identified in your jurisdiction estimates for FY 1991 submitted to Congress.

Answer. The proposed reprogramming reflects a higher estimated end cost of the FY 1990 AOE to account for higher than anticipated shipbuilding costs, increased change order allowance for correction of Navy specifications and new higher estimates of future inflation between now and the completion of construction in 1993.

AMPHIBIOUS/AUXILIARY SHIPS

Question. Is the Navy considering or studying the feasibility of an AE "variant" that would use existing hull designs or some modification thereof? Explain.

Answer. We have established a ship characteristics working group that will examine performance requirements and ship feasibility studies of variants of the AOE 6 class design to increase ammunition and cargo stores capability while retaining the important military replenishment features of the multi-product AOE, such as high speed, survivability, and operational flexibility.

Question. Are both existing AOE and TAO designs being considered for possible modification for this "new" AE? Explain.

Answer. The ship characteristics working group will focus on variants of the AOE 6 design because of the important military replenishment features of the multi-product AOE 6, such as high speed, survivability, and operational flexibility.

Question. Explain the importance of the LHD and LSD class ships (related vessels) to the lift requirement and missions of our Marine Corps Expeditionary Force Assault Echelon and Marine Expeditionary Brigade Assault Echelon.

Answer. The LHD and LSD 41/49 class ships are the foundation of the amphibious force of the future, and its ability to be able to meet the lift requirements of the assault echelon of MEF and MEB. The LHD mission is to embark, deploy and land elements of a marine landing force in an amphibious assault by helicopters, landing craft and amphibious vehicles. It also is convertible to a sea control role. The LSD 41/49 mission is to transport and launch amphibious craft and embarked personnel in an amphibious assault. The LSD is also the primary ship to dock and repair landing craft. With the addition of LHD and LSD 41/49 class ships to the amphibious force and their capability to employ LCAC, the amphibious concept of operations is now based on maneuver warfare from the sea and over-the-horizon operations.

Question. What other ships support these forces?

Answer. In addition to LHD and LSD 41/49 class ships, the current amphibious force is made up of the following classes of ships: LHA, LPH, LPD, LSD 36, LKA, LST and LCC. These ships are an integral part in providing today's amphibious ships lift capability.

Question. What are current force structure requirements for these forces, amphibious as well as lift requirements, including number of ships required for each class and the current shortfall in each class? Explain in detail and in which fiscal year the current requirements for these ships will be met.

Answer. The requirements for amphibious shipping are determined by the fingerprint of the Assault Echelon (AE) of the force to be landed in an amphibious assault. This fingerprint is comprised of five items; the quantity of troops; the square feet of deck-space for vehicles; the cubic feet of space required for cargo; the number of Vertical Take-Off and Lift (VTOL) spots, converted to the equivalent space required for a CH-46E on an LHA class ship, added for the aircraft; and the number of well deck spots for the Landing Craft Air Cushion (LCAC).

The amphibious lift goal is the capability to carry the Assault Echelon of a Marine Expeditionary Force (MEF) plus a Marine Expeditionary Brigade (MEB).

The capacity of the current inventory of amphibious shipping fulfills, on the average, 78 percent of a MEF plus MEB goal with troop and vehicle carrying capacity above this average, and VTOL and LCAC spots below this average.

Question. What annual studies or other analysis does the Navy and OSD use to determine these requirements?

Answer. In the 1980's, under the Secretary of the Navy's direction, three studies were undertaken to define amphibious lift requirement. The "Department of the Navy Long Term Amphibious Lift Requirement and Optimum Ship Mix Study" (DON Lift) was completed in 1982, defined the size of notional amphibious forces and computed lift requirements for the force. A similar study was drafted in 1987/88. It validated the DON Lift Study and demonstrated the need to further define USMC aviation requirements.

Accordingly, the 1987/88 study was not finalized. Instead, in 1989, the Secretary of the Navy directed a new study entitled "Amphibious Operations and USMC Air Support Requirements Study" to be accomplished jointly by the Navy and USMC. This study will be completed in 1990.

Question. Provide details on the Navy's plans for any new amphibious and auxiliary ships or design studies in the outyears FY 92–94, as well as to the year 2000.

Answer. We are examining characteristics and feasibility studies for an AOE 6 variant that could begin construction in the mid-1990s. Also, we are examining characteristics and feasibility studies in preparation for a Milestone I decision on whether or not to proceed toward a new amphibious ship that could begin construction in the mid-1990s. We may also initiate studies for repair and salvage ships that could begin construction in the mid to late 1990s.

CARRIER BATTLE GROUPS

Question. Provide details on the number of ships, by class and number (including auxiliary support), that constitute and support a carrier battle group.

Answer. The composition of carrier battle groups (CVBG) must be flexible to meet varying operational requirements. A CVBG is composed nominally of the following ships:

1 CV/CVN
1 CG 47/52
1 CGN or CG 16/26
2 DD 963
2 FFG 7/FF 1052
1 AOE

The CVBG is supported by these ships:

1 AE
1 AFS
1 AO

The AOE (station ship) operates as an integral part of the CVBG and provides "one stop" fuel, ammunition and stores support for the battle group. The AOE is the only logistics ship which has a multi-product delivery capability and can maintain sustained battle group speeds. The support ships (shuttle ships) transport their products from forward logistic bases to the AOE at sea. Later, the AOE will transfer these products to the combatants in the battle group.

Question. What would be the exact impact on the number of new surface combatants and auxiliary or amphibious ship requirements (today and in the outyears) if the number of carrier battle groups (including support) is reduced from 14 to 12? Provide details.

Answer. If the number of carrier battle groups were reduced from 14 to 12, our CG/CGN/DDG/DD requirement could be reduced from 106 ships to 94 ships. We need to build 5-6 DDGs each year to replace the DDG 2 and DDG 37 class destroyers which are retiring now and the 18 CG 16/26 Class cruisers which retire later this decade.

As for auxiliary requirements, logistics ship requirements may be adjusted as follows:

14 CVBGs	12 CVBGs
14 AOE	12 AOE
15 AE	13 AE
9 AFS	8 AFS
22 AO	19 AO

Reducing the number of CVBGs from 14 to 12 would have no impact on amphibious ship requirements.

MINE WARFARE SHIPS

Question. Is the Navy considering or studying a mine warfare ship design (for the future) that would do the job that the current two mine warfare ship programs are currently performing? Provide details.

Answer. We have established a ship characteristics working group that will examine performance requirements and ship feasibility studies of variants of the modern hull technology MHC 51 class mine warfare ships. We will examine MHC 51 class variants for a deployable modern hull technology ship that could perform coastal and open ocean minehunting and minesweeping missions. An MHC 51 variant could begin construction in the mid 1990s.

LHD PROGRAM

Question. Is it still the Navy's plan to openly compete the procurement of LHD 5 and follow on ships? Explain.

Answer. The LHD 5 and any out year contract option ships will be procured on a full and open, competitive basis.

Question. Why is there such a significant cost increase in LHD-5 (budgeted in FY 1991 for $959.8 million) versus the last of the first 4 LHDs, LHD-4, which was budgeted and approved by Congress in FY 1989 for $737.5 million? Explain in detail.

Answer. The FY 1991 LHD 5 is more expensive than the FY 1989 LHD 4 because: (1) the LHD 5 estimate includes the cost of the ship plus profit for the shipbuilder while the LHD 4 shipbuilder is off-setting costs above target price by absorbing a share of these costs from profit; (2) LHD 5 includes performance improvements such as an expanded collective protection system against nuclear, biological, and chemical weapons threats, and improved self defense missile systems; (3) two years of inflation between FY 1989 and FY 1991 with higher estimates of inflation during the period of construction for the FY 1991 ship.

PATROL BOATS (SOF)

Question. The FY 1991 Navy justification estimates to Congress states that coastal or SOF patrol boats Congress provided $100 million for in FY 1990, will partially replace the existing fleet (18 in number) of aging MK-III Patrol Boats. How old are the MK-IIIs and what capabilities will the new patrol craft offer over the existing MK-IIIs?

Answer. The age of the patrol boats is as follows:

PB MK I/III Age

1—PB MK I	Delivered 1973	17 years old
1—PB MK III	Delivered 1974	16 years old
2—PB MK III	Delivered 1975	15 years old
7—PB MK III	Delivered 1976	14 years old
3—PB MK III	Delivered 1977	13 years old
4—PB MK III	Delivered 1979	11 years old

Total of 18—65′ PBs.

The new patrol craft offer advantages over the MK-III in the areas of speed, range, seakeeping, surveillance capability, firepower, and payload. A comparison of characteristics follow:

65′ PB VERSUS COASTAL PATROL BOAT (FBC) CHARACTERISTICS

Characteristics	PB MK III	PBC
1. Speed (max.)	Originally 28 kts, now approx. 22 kts	35 kts
2. Range (nm)	550 @ 12 kts	2000 @ 12 kts
3. Seakeeping	Operate in SS3.	Operate in SS3.
	Survive in SS5	Survive in SS5.
		Active stabilization system.
4. Surveillance	Surface search x-band radar (LN 66 or Furuno 1411 or Furuno 802D).	Surface search s-band and navigation x-band radars, FLIR, ESM and IFF.
5. Firepower (Note 1)	4–50 cal mts.	4-mts for 50 cal
	3-wpn stations for 20 mm, 81 mm mortar.	M60 or 40 mm G.L. 2-MK 38 25 mm MGS Stinger ring stnd MK52 chaff/decoy.
6. Payload	Crew—5 persons	Crew—17 persons
	F.O. 1800 gal.	F.O. 10,000 gal.
	Pot. wtr 100 gal.	Pot. wtr 500 gal +600 gpd desal.
	L.O.-17 gal. Provision 553# Ammo 2,400 #.	L.O. & Provisions (for 17 crew + 8 SEALS) for 10 day mission, 1-RIB, 2-CRRC(L), SEALS & equipment, ammo 7,031 #.

Note 1: The P31 for the PBC includes two stabilized multi-weapons platform systems with capability to remotely fire minor caliber guns (50 cal and 25 mm M242), 2.75 rockets, stinger and hellfire missiles. These will replace the baseline MK 38 MGS and stinger ring stand. The baseline craft conatins the weight, space and power reservations to incorporate the P31 without a degradation in performance.

Question. What is the current requirement (number of craft) for our Naval Special Warfare operations and missions?

Answer. An Operational Requirement Letter for the Coastal Patrol Boat (PBC) was promulgated on 12 December 1988 for a total of 16 PBCs.

SCN COSTS

Question. According to press reports, the Naval Sea Systems has reported that cost overruns on 21 of the 37 current fixed price shipbuilding contracts are expected to total $3.8 billion—of which the Navy's share is approximately $1.5 billion. Is this accurate? Provide details or the report on the contracts (and shipyard) for the record.

Answer. The response to this question is business sensitive and will be sent to the Committee separately.

Question. On another 16 contracts, 12 are expected to be completed at target costs and 4 are expected to underrun their target cost by $200 million. List the contracts (and shipyards) that are expected to be completed at target costs and those that will underrun and by how much.

Answer. The response to this question is business sensitive and will be sent to the Committee by letter.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

Mr. DICKS. Mr. Miller, do you have anything further?

Mr. MILLER. Yes, I do.

WORLD-WIDE SUBMARINE FORCES

Mr. MILLER. I have one question. I understand that we are talking about shipbuilding and overhauls, but, Admiral Cooper, you have in your statement the fact that there are 400 submarines operated by countries other than the two major powers and the fact that because many of the Third World terrorist countries and potential opponents are procuring submarines it is mandatory we maintain an ASW capability to negate them.

I know this is more a policy question and not necessarily what you are here for, but by the same token, anti-submarine warfare and the protection of sea lanes is your area of responsibility.

It reminds me that we are doing a lot of trading with Japan. Japan now can protect itself out to 1,000 miles.

What I am thinking, with our submarines and our surface ships, we are making the water safe for those countries that are dealing with us and for other maritime countries.

One could make the argument that the negative trade balance we have with countries such as Japan is only part of the story because we are, through the appropriation of funds for the purchase and maintenance of ships, protecting other countries' commercial trading ships. So we, in turn, could add to that negative trade balance apparently quite a figure for the cost of protecting the ships of other countries.

I know it is policy more than what we generally are talking about, but since your remark is in here, Admiral Cooper, do you have anything to add regarding why we are going that far and whether we should not take into consideration the negative trade balance with some countries?

Admiral **Cooper**. No, I think that I can't really comment on that specifically. The point I am trying to make is that the submarine has a wide variety of capabilities, and part of the requirement for the Navy is obviously to take care of the sealines of communication. As we are more and more dependent upon resources from other countries, it is mandatory that we be able to protect those sealines of communication, not only from the Soviet Union, but also from Third World nations.

The area that I would point to even more than the Asian area would be around the Mediterranean. There are several countries that I would classify as Third World terrorist countries that have submarines with some capability.

As far as the specifics of the question, I can't answer it, but the reason that my statement is in there is what I have tried to state.

Mr. **Miller**. Do we have any international agreements where we instead of having U.S. ships assume responsibility around the world for protecting the other countries—and that would include submarines too, but I am thinking of surface ships mainly—any international agreements that tells other countries to furnish so much protection?

Admiral **Cooper**. Absolutely.

The primary example is NATO. I have shifted to the European side because that is the easiest to talk about. We also have several treaties and agreements and are working closely with other countries around Asia.

NATO has a strong naval arm with many ships that we would incorporate into the Atlantic Strike Fleet if something were to come up in a naval war in and around Europe.

Admiral Nyquist may want to say something further on that.

We have times where we work very closely with them and we have exercises that we carry out with other countries in the Asian and European theater.

Mr. **Miller**. But other countries do not have the number of ships that we have?

Admiral **Cooper**. No, sir.

Mr. **Miller**. As long as they can lean on us for protection the American taxpayer will have to furnish the dollars to protect not only our surface ships, but ships from other nations that are moving cargo into our ports.

Admiral **Cooper**. We get certain things from them under treaties. That is a matter the State Department has to work on and is not under my purview.

FUTURE PROCUREMENT PLANS

Mr. **Dicks**. I notice in your statement you have your charts. Any money in this five-year plan for a long lead on an aircraft carrier?

Admiral **Nyquist**. Not in the six-year plan that we have here. No, sir.

Mr. **Dicks**. What is going to happen?

We are going to finish up these two carriers at Newport News—what is going to happen to our shipbuilding capability?

Has the Navy thought about that at all?

Mr. CANN. I think that there has been discussion and planning. As we move into the next POM, we are going to start looking at where to put a carrier in to support the force structure and to make sure that we are maintaining the shipyard capability that we have to do this.

Mr. DICKS. I notice that you have two attack submarines in 1991, but then there is nothing in 1992 and then you go to six in 1993.

Is that because of competitiveness propositions?

Mr. CANN. There was an attempt at one point to look at what they called large lot procurement. That is under intensive review as to whether or not that makes sense.

That issue is being addressed right now in the POM process for next year's budget.

Mr. DICKS. I assume the destroyers are part of this because you have 10 in 1992 and zero in 1993.

Mr. CANN. The entire large lot issue is under review.

Mr. DICKS. You don't think that is a very good strategy?

Mr. CANN. It is under review for a couple of purposes, one having to do with the major warship review directed by Secretary Cheney, and what makes the most sense with respect to how you contract for this sort of activity.

Mr. DICKS. I assume you will let us know what that will do in terms of changing advance procurement requirements that are in the 1991 budget?

Mr. CANN. Yes, sir.

[The information follows:]

The FY 1991 budget before Congress contains the necessary advance procurement for the specified large lot procurement profile. Should this profile be changed, revisions would be required to align advance procurement funding with the revised profiles.

Mr. DICKS. Let me ask you one other thing on SLEPs.

You have been doing most of your SLEPs at Philadelphia, is that correct, on your carriers?

Mr. CANN. I believe that is correct.

Mr. DICKS. How much further are we going in that direction? Are we at the last of that or where are we in terms of SLEPing——

Admiral NYQUIST. We show one SLEP in 1993, Mr. Chairman.

Mr. DICKS. And that would be the last one?

Admiral NYQUIST. Well, the whole issue of SLEPs—

Mr. DICKS. What happens in Philadelphia?

Admiral NYQUIST. That is part of the issue. We are taking a look at the whole SLEP program and a number of other things as we look at the 1992 and outbudgets.

Mr. DICKS. The committee is adjourned until 10:00 a.m. tomorrow.

Thank you, gentlemen.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

SSN CONSTRUCTION SCHEDULES AND COST

Question. During 1989 the delivery dates for twenty Los Angeles class submarines were adjusted four times. In every case the changes result in delays of delivery ranging from 1.5 months to 23 months. Nine of the submarines will deliver more than one year later than previously planned and five will be delayed over 20 months.

In addition to moving $176.5 million into the fiscal year 1984 and 1985 programs last year without formal Congressional notification, you are now requesting reprogramming of $151.6 million to cover additional requirements in the 1984, 1985, and 1986 SSN 688 programs. What is going to be the additional cost of the ten submarines of the 1987, 1988, 1989, and 1990 programs some of which have delivery delays of up to 23 months?

Answer. The Navy reprogrammed $119.7 million into the fiscal year 1984 and 1985 SSN 688 programs from expired funds. We did not provide formal Congressional notification prior to reprogramming because it is not required for expired funds within the SCN appropriation. The Navy has a pending request for authority to transfer $56.8 million into a fiscal year 1986 Cost Growth line for the fiscal year 1984 and 1985 SSN 688 programs. $176.5 million is the total of both the $119.7 million expired reprogramming action already taken and the pending request for $56.8 million in cost growth.

The Navy also requested Congressional authority to transfer $94.8 million into the fiscal year 1988 SSN 688 program. The $94.8 million FY 1988 request and the $56.8 million FY 1986 request are the two components of the pending reprogramming action FY 90-2PA which totals $151.6 million.

The current end cost estimates for the FY 87-FY 90 SSN 688 program are reflected in the President's FY 1991 budget and are compared to the estimates contained in the FY 90 President's Budget with the cost difference versus FY 90 shown. The FY 91 estimates include recognition of 688 class submarine delivery delays. The Navy is conducting the annual Ships' Cost Adjustment (SCA) review at this time.

FISCAL YEAR 1990/FISCAL YEAR 1991 PRESIDENT'S BUDGET SSN 688 END COST ESTIMATES

[Millions]

Fiscal year	End cost (FY 90)	End cost (FY 91)	Cost difference
1987	$2,503.4	$2,487.6	$−15.8
1988	1,877.8	1,976.6	98.8
1989	1,559.1	1,546.6	−12.5
1990	1,093.8	946.1	−129.7
Total	7,034.1	6,974.9	−59.2

SEALIFT

Question. Last year this Committee led the effort to establish a program to build sealift ships. This was done after numerous witnesses came before the Committee and identified the need for more sealfit capacity.

Do you believe a program to procure sealift ships is necessary now to ensure a viable shipbuilding industry remains in this country to provide surge capacity?

Answer. The need for a domestic shipbuilding base was shown by high attrition losses early in the two world wars; and in the event of a protracted, conventional war among superpowers, we would need to mobilize a domestic shipbuilding base. Also, we would need relatively large naval and sealift force levels during peacetime to absorb attrition losses early in a large war, because the lengthy production process for ships, especially complex naval combatants, prevents rapid replacement of attrition losses.

To maintain a domestic shipbuilding base for wartime mobilization, we need both naval shipbuilding and merchant ship construction. The very successful strategic sealift program that we accomplished in the past decade was instrumental in preserving part of the shipbuilding base that would not otherwise have survived. Given rapidly evolving world events, the existence of more than 100 dedicated military sealfit ships, and the policy of relying primarily on the commercial merchant marine, we may not now need to continue to increase our dedicated military sealift ships through government production programs. In accordance with the national sealift policy we should rely primarily on the commercial merchant marine funded by private venture capital to meet our sealift needs.

In addition, there is a burgeoning world market in commerical shipbuilding. Our Navy programs have preserved a sector of the shipbuilding base and have developed ship production technology advances that have positioned our domestic shipbuilders to seek a share of this world market. The stimulus of a competitive world market is more important for a viable shipbuilding base than production of additional dedicated military sealift ships for which there are no firm operational requirements.

Question. The Shipbuilders Council of America has been studying two alternative acquisition strategies for sealift ships. One strategy calls for Navy management of a roll-on/roll-off ship design and acquisition, the other strategy calls for Maritime Administration management of a combination container and breakbulk design and acquisition.

Would the design proposed by the Maritime Administration be of use to the military for transportation of equipment to support our current warfighting plans?

Answer. In response to FY 1990 legislation, we formed an interservice and interagency working group to guide technology and procurement planning and determine characteristics for sealift ships. The Maritime Administration has been a key participant in this working group, and has developed several commercial ship concepts in dialogue with American shipping industry. The Maritime Administration concepts include roll-on/roll-off, container, and break-bulk capability and ship speeds of about 21 knots. These ships, if built and placed in commerical service, would have military utility in wartime roles.

Question. How would a Navy designed roll-on/roll-off ship be used in peacetime?

Answer. Navy designed-for-purpose dedicated military sealift roll-on/roll-off ships could be employed in peacetime in a number of different ways depending on evolving world events and available budget resources. These alternative employments include: forward theater afloat prepositioning for rapid reaction, United States afloat prepositioning for rapid deployment, ready reserve for rapid mobilization, or in-service for repositioning forces and carrying logistics cargo replacing ships currently in-service.

Question. Do you believe the Maritime Administration has the technical and administrative expertise to manage a $600 million shipbuilding program?

Answer. The Maritime Administration, like the Navy, is staffed with highly skilled and dedicated public servants. Their expertise is in merchant ship construction and I believe they have the required capabilities to manage merchant shipbuilding programs.

PROPOSED DEFENSE MANAGEMENT IMPROVEMENT ACT

Question. Secretary Cheney recently submitted to the Congress the Administration's proposed "Defense Management Improvement Act." Sections 209 through 211 are of importance to this Committee.

Sec. 209 repeals 10 U.S.C. 7299a(d) that requires that short term repair work of 6 months or less on ships assigned to the Naval Reserve Force that are homeported on the West Coast be competed without regard to area.

Why is the Department proposing a repeal of this law?

Answer. The existing legislation creates different treatment for Naval Reserve Force (NRF) ships homeported on the East and Gulf Coasts. NRF ships homeported on the East and Gulf Coasts use the homeport for short term work (six months or less). Since NRF ships do have active duty crews attached to each ship, the existing legislation requiring coastwide bidding area for West Coast short term work creates an unnecessary hardship for the ship's crew. The active duty crew constitutes about two-thirds of the ship's manning.

The existing legislation for NRF ships also adds additional administrative effort and expense for the Navy. The additional expense is that the Navy cannot evaluate the foreseeable costs of sending NRF ships outside the homeport based on the restriction contained in each year's Appropriation Act. Section 211 of the proposed legislation addresses the foreseeable cost issue contained in each year's Appropriation Act.

Question. Sec. 210 repeals Section 7313 of title 10, United States Code, overhaul of naval vessels: competition between Public and Private Shipyards.

During the Shipbuilding and Conversion hearing for the fiscal year 1989 appropriations, the Assistant Secretary of the Navy for Shipbuilding and Logistics testified that "Public/Private (ship repair competition) has produced good savings and sharpened up both sides of the economy", and he also agreed that increased efficiency of both public and private yards is the result of competition.

Based on this testimony, why then is the Department proposing to delete this provision of law?

Answer. The Navy is not proposing to delete Public/Private competition but rather to repeal 10 U.S.C. 7313 which requires that the Secretary of the Navy ensure, prior to award of a project for repair, alteration, overhaul or conversion of a naval vessel following competition between public and private shipyards, that a comparability analysis is done which includes certain factors and then make the award based on that comparability analysis. Two of the factors which Congress directed be included in the comparability analysis are the full cost of future retirement benefits of civilian employees and either equal access to the Navy supply system for private contractors or a factor in the comparability analysis reflecting this advantage to public shipyards.

Question. What has changed that has caused the Department to change its mind?

Answer. The Navy is providing equal access to the Navy supply system rather than including it in the cost comparability analysis. However, it is not "equal" in that use of the Navy supply system is optional for private shipyards but mandatory for naval shipyards. Additionally, it would be difficult to develop a factor that equitably addresses the advantages/disadvantages of mandatory use of the Navy supply system by naval shipyards.

Question. Since you are proposing this change, how do you plan to manage the overhaul program in the future?

Answer. For the most part, the current system is working. The Navy has been performing comparability analyses on public/private competition awards since program inception. While Congress has added additional factors to this analysis, the Navy would perform this analysis in any case to ensure that cost comparability is achieved.

The Navy will continue to consider the following costs in its evaluation of public/private competition: military personnel; facility depreciation; unemployment compensation; future retirement benefits of civilian employees; and Administrative Project Office (for public shipyards), or Supervisor of Shipbuilding, Conversion and Repair (for private shipyards). The factors are evaluated as part of the intricate methodology used by the Navy in its comparability analysis. These factors have been reviewed and approved by the General Accounting Office.

Question. The Department is also proposing to repeal Section 9053 of the Department of Defense Appropriations Act (Public Law 101-165) which prohibits the Navy from entering into any contract for ship maintenance that includes charges for interport differential as an evaluation factor for award.

What is the reason for proposing to repeal this provision?

Answer. Permanent legislation, 10 U.S.C. 7299a, requires consideration of foreseeable costs and they are presently used on the East and Gulf Coasts. Only restrictive language included in each year's Appropriation Act (alluding to interport differential rather than foreseeable costs, but meaning the same thing) prohibits the use of foreseeable costs on the West Coast. The Navy knows of no reason that such a geographical distinction should exist. When a ship is overhauled away from its homeport area there are additional costs to the Government caused by the relocation of the ship. The existing legislation prohibits the Navy from considering these legitimate costs when evaluating bids and proposals on West Coast procurements, hides the true cost of the availability, and subsidizes contractors located outside the homeport.

SHIP MAINTENANCE AND REPAIR

Question. In the fiscal year 1990 Conference Report Navy was directed "not to contract with private company for major repair, overhaul and maintenance activity which requires utilization of dry dock and pier facilities when that company does not have such facilities of its own." We understand that there has been a protest on this matter.

What were the results?

How will the Navy implement the intent of Congress in conjunction with this ruling?

Answer. As you know, we competitively awarded the NTU of USS HALSEY to a San Diego ship repairer that did not own its own dry dock. The only other offeror owned four West Coast ship repair facilities with dry-docking capability and felt entitled to a sole source procurement from the Navy. They protested the competitive award in federal district court in Portland, Oregon. The judge ruled in favor of the Navy and its attempts to maximize competition.

In this regard the Navy has received a letter from several Members of the House Armed Services Committee. They pointed out that, in spite of the Report language, we have a statutory requirement to comply with the Competition in Contracting Act of 1984. As a rule, we do not intend to make our facilities available when adequate competition exists. Whenever this policy prevents compliance with the Competition in Contracting Act, we intend to make our facilities available.

COST GROWTH AND SCHEDULE OVERRUNS AT PRIVATE SHIPYARDS

Question. According to the GAO, ship maintenance and modernization costs increased significantly between the time the contracts were awarded and the time the contracts were completed. Final costs for 400 contracts completed between fiscal years 1985 and 1988 exceeded award amounts by more than 31 percent. During the same period, 37 percent of the ships had schedule overruns, with a large number exceeding 30 days. It is noted, however, that there is an overall downward trend in cost growth during this period.

What are the main causes of cost growth and schedule overruns in private shipyards? Which causes are within the Navy's control.

Answer. The Navy develops work packages based on Government estimates of work to be performed within existing budgets. Cost growth is attributable to the uncertainty of work packages. There are open and inspect repairs which may be estimated low but result in much greater work than anticipated when actually inspected. Incomplete specifications also contribute to inaccurate estimates by industry.

Occasionally, late or defective Government Furnished Material, Government Furnished Equipment and Government Furnished Information can contribute to cost growth and schedule overrun by causing disruptions. Other disruptions include: weather, labor strikes, and late discovery of material deficiencies. Poor contractor quality controls can further aggravate the impact on growth.

Due to the competitive nature of ship repair work small contractors are bidding and are taking on large/complex jobs. The Navy is experiencing cost growth and schedule overruns as these contractors go through a learning curve.

The Navy is currently implementing the following items under our control: better defining work packages, reducing work added after contract award, improving performance on GFM/GFE/GFI timeliness and quality, and improving specifications.

Question. What problems do cost growth and schedule overruns in private shipyards cause the Navy?

Answer. The actual cost growth that occurs during ship repair has several impacts including: shifting of the fleet's dollars from other priority requirements; reducing the Navy's negotiating leverages by placing them in a sole source environment for changes negotiated after contract award; and, providing the contractors with a basis for future claims against the Navy. Cost growth does require Navy resources to negotiate the changes and is disruptive once an availability begins. Integrating growth work after the fact into a preplanned work package is inherently more expensive and disruptive than if the work was pre-planned in the original work package.

The schedule overruns impact the fleet's ability to meet its operational commitments; causes disruption and morale problems for the sailors; drains contractor's resources from other Navy work thereby placing other ships' schedules in jeopardy as well.

Question. What action is the Navy taking to reduce cost growth and schedule overruns in the private shipyards?

Answer. The Navy is applying lessons learned for follow-on availabilities to eliminate repeat cost growth items. In the work package development process, we are adding discipline in the following areas: work screening; planning; work specification development; and quality assurance. Use of standardized specifications further supports this effort.

In the area of contracting, we are invoking liquidated damages as a disincentive to slipping schedules and have instituted innovative contracting methods such as incentive fee and negotiated procurements. Additionally, we invoke an additional growth requirement in the basic contract to provide for a prepriced reserve of manhours for growth work.

Prior to award, the Navy is increasing use of pre-award surveys to evaluate contractor's past performance as a major factor in future awards. After award, on-site planning yard representatives are provided for technical support and guidance.

We are limiting growth where possible. When negotiating in a sole-source environment is undesirable, work is being deferred to a later availability.

The Navy is retaining its prerogative to bring in a third party contractor to accomplish growth work that can not be negotiated with the prime contractor at a fair price.

Question. To what extent is the overall downtrend in cost growth a result of Navy efforts to control this growth? Did this downward trend continue in fiscal year 1989 and to what degree?

Answer. The actions that Navy has taken in the areas of applying lessons learned, instituting discipline in the work package development process, utilizing contract provisions (liquidated damages clause, incentive fee, and negotiated procurements), use of preaward surveys, and limiting growth has contributed to the downward trend reflected in statistics for FY 1985–1988:

Year:	*Percent of Growth*
1985	34.7
1986	36.5
1987	29.0
1988	25.2
Average	31.3

The downward cost growth trend from 1985 to 1988 was not realized in FY 1989. The growth was 42.9% in FY 1989. In the absence of commercial repair work, this figure is indicative of the intense competition that exists to obtain major Navy repair work. The bids are low. The end costs are realistic.

DELAYS IN COMPLETING OVERHAULS AND REPAIRS

Question. In March 1989 the Assistant Secretary of the Navy for Shipbuilding and Logistics stated that delays in completing overhauls and repairs did not significantly affect operational and mission needs. On the other hand, Atlantic and Pacific Fleet officials stated that schedule overruns adversely affected their ability to meet strategic and global commitments. Why does the pattern of frequent overruns continue year after year? Please outline the Navy's current efforts to correct the cost growth and schedule overrun problems at the public shipyards.

Answer. Schedule overruns for the last four years are directly attributable to an unusually high number of submarine overhaul starts beginning in the FY 1985–88 timeframe which created a serious imbalance between workload and shipyard trade and management skills. This imbalance was exacerbated by cumbersome work processes and procedures. We are attacking these problems through three primary channels.

(1) The Naval Industrial Improvement Program which is applicable to a number of Navy industrially funded activities. For public shipyards, major improvements are being made in work estimating practices and properly matching the size and skills of the workforce to the workload. We are currently developing, testing, and employing new work execution techniques. This program affects virtually every facet of shipyard operations.

(2) A Ship Depot Maintenance Study which identified the major contributors to public shipyard cost and schedule overuns. The study included 30 recommendations which received the attention of flag steering boards. One of the more prominent initiatives spawned from the study is an advanced industrial management program to improve the technical information used by public shipyards, allowing improved work packaging, scheduling, and work execution process.

(3) Joint headquarters and shipyard strategic planning which has established goals, objectives, and a plan of action for improvement of cost and schedule performance, as well as the technical excellence and safety of our workforce.

Question. What effect are overruns having on the Navy's ability to meet strategic and global commitments? What commitments have not been met because of overruns?

Answer. Delays in overhauls have not resulted in a failure to meet strategic and global commitments. Delays in completion of overhauls and repairs have had the following results:

(1) Increased availability overhead cost.

(2) Delayed the start or resulted in relocation of scheduled maintenance availabilities due to unavailability of repair facilities.

(3) Decreased opportunity to participate in and provide services to training exercises for other branches of the Navy's ASW force.

[CLERK'S NOTE.—End of questions submitted for the record.]

THURSDAY, JUNE 21, 1990.

TANK INDUSTRIAL BASE

WITNESSES

ROBERT W. TRUXELL, VICE PRESIDENT AND GENERAL MANAGER, LAND SYSTEMS DIVISION

GORDON ENGLAND, VICE PRESIDENT OF RESEARCH AND ENGINEERING, LAND SYSTEMS DIVISION

HENRY SECHLER, STAFF VICE PRESIDENT, INTERNATIONAL, GENERAL DYNAMICS CORP.

JIM COAKLEY, UNITED AUTO WORKERS UNION, INTERNATIONAL REPRESENTATIVE, GENERAL DYNAMICS COORDINATOR

BOB DENNISON, UNITED AUTO WORKERS UNION

CARY ALLTOP, PRESIDENT, UAW LOCAL 2147 (SALARIED EMPLOYEES), LIMA ARMY TANK PLANT

DARRELL COLE, PRESIDENT, UAW LOCAL 2075 (HOURLY EMPLOYEES), LIMA ARMY TANK PLANT

BEN POLSELLI, PRESIDENT, UAW LOCAL 1200, DETROIT ARMY TANK PLANT

INTRODUCTION

Mr. MURTHA. The committee will come to order.

We want to welcome the working people from out in the field. We talk to a lot of people from inside the Beltway who really do not know what goes on in the field.

We also get a lot of advice from your representatives here in Washington who sometimes hound us to death. It is good to see somebody from the working level.

We appreciate very much you folks taking the time to come in and see us. We welcome you to tell us about what we think is an important program. Mr. McDade.

Mr. McDADE. Welcome, all of you. We are delighted to have this briefing. I sometimes refer to this as the monastery in Washington, D.C. I love to get home and get out of town. We interface with you people here but there's nothing like getting together with the people who are bending the metal.

We are delighted to have you here.

Mr. MURTHA. If you have a statement, we would be glad to hear it. Then we will see if there are any questions.

SUMMARY STATEMENT OF MR. TRUXELL

Mr. TRUXELL. Thank you, Mr. Chairman, and committee members. We really are delighted to appear before this committee today.

We are here, as you know, to testify about the impending death of the U.S. tank industry. It is a very serious matter and it deserves immediate attention.

The main battle tank is a unique vehicle. It is the king of the land battle and there really are no commercial industries that can easily convert to its manufacture. The Soviets continue to produce tanks at a higher rate. They outnumber us already at a three-to-one ratio and now we are heading towards a cold-turkey stop. It doesn't make any sense to us and we hope to present a convincing case to you today that will cause you to agree with us.

On my left is Gordon England, Vice President of Research and Engineering from General Dynamics Land Systems. He will present our prepared statement.

Also, Mr. Hank Sechler, Staff Vice President for International Sales for General Dynamics Corporation, who is prepared to answer any questions you might have about foreign military sales considerations. Mr. Sechler just returned from a trip to the Middle East so he has first-hand knowledge.

And lastly, we are honored to have high ranking representatives of our labor force present to answer any questions you might have. This work force has been phenomenal and produces about 25 percent of all of our tanks with zero defects right off the production line. And that is a tremendous record, because these defects are scored for little things like paint scratches and other minor defects.

The remainder of the tanks only average three or four minor defects per tank in addition to all the zero defects. So it is my pleasure to introduce Jim Coakley and Bob Dennison, International Representatives of the United Automobile Workers, Mr. Darrell Cole and Mr. Cary Alltop, Presidents of our UAW Locals at the Lima Tank Plant, and Mr. Ben Polselli is President of our UAW Local at the Detroit plant.

It is my pleasure to introduce Mr. Gordon England, who will present a short statement.

SUMMARY STATEMENT OF MR. ENGLAND

Mr. **ENGLAND**. Thank you. As Mr. Truxell has commented, we are here today to present our views on the real possibility of America's losing its only tank industry.

FISCAL YEAR 1991 DEFENSE BUDGET

As you are likely aware, the fiscal year 1991 budget contains funding for 163 M1A1 tanks and for 62 M1A2 tanks. It also contains $110 million to terminate tank production in 1991 at the Detroit Arsenal Tank Plant. We are uncertain of the $110 million figure, but Army testimony before the House Armed Services Committee indicated that amount. If present plans unfold, all U.S. tank production will be terminated when the fiscal year 1991 tanks are completed at the Lima production facility in early 1993.

So if everything unfolds as currently in the fiscal year 1991 budget, we will stop all tank production in early 1993.

That reduces budget demands in the near-term, but we do not believe adequate consideration has been given to the implications that this long break in production will have on our domestic industrial base or on commitments already made to foreign friends and allies. Nor does it take into consideration the cost, about $3 billion, of reconstituting the tank industry, if and when we need it.

ARMORED SYSTEM MODERNIZATION PROGRAM

The Army plans to start a new tank program in the late nineties or the year 2000, which is the armored system modernization program. So we are faced with a large cost when we reconstitute the tank industry after this long break in production.

Mr. **McDade**. Would you re-state what you estimate that cost to be?

Mr. **England**. We estimate that cost to be $3 billion.

Mr. **McDade**. Is that in now-year dollars?

Mr. **England**. Now-year dollars.

Mr. **McDade**. In then-year dollars, what would it be?

Mr. **Truxell**. Seven or eight years away, it would be nearly double.

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. **England**. In addition, frankly, when we shut down, we have thousands of suppliers and they will not recover from a production shutdown. We surveyed our suppliers and that survey revealed that 15 percent of our suppliers will go out of business or will close down plants or portions of their business having to do with tank manufacture.

So, they will basically stop anything related to tank manufacture, and it will disappear in terms of our industrial base. All report a significant negative impact. The result will be we will lose critical skills unique to our industry. There is no commercial equivalent to the work we do. We will lose the production capability and the surge capability if future need arises.

In a crisis, then we lose the military and the negotiating leverage associated with the ability to respond when needed. Frankly, when we want to start up, we can't just order parts after a long production break. We have to then re-qualify those thousands of firms, and that is a very painstaking process to re-qualify all the firms, including our own plant at that time.

FOREIGN SALES

I wish there was a shortcut to that process, but there is not in terms of the quality and the difficulty of the product that we produce. Relative to foreign sales, I am sure you are aware of the foreign sales commitments. The U.S. has agreement with Egypt to provide 555 M1A1 tanks over ten years and that is part of the security assistance arrangements flowing from the Camp David process.

The Government of Saudi Arabia has also requested procurement of 315 main battle tanks of the latest M1A2 configuration. As you are perhaps aware, the M1A2 configuration is now in full-scale engineering development. So the Saudi Government has requested that particular version.

SOVIET TANK PRODUCTION

Other international opportunities exist in other Middle East countries plus Britain and Sweden. While the topic of the Soviets, it is interesting to note that they are still producing main battle tanks and while they have cut production, they are still producing in high quantities, particularly compared to ourselves and that has been reported to be on the order of 1,500 tanks a year, and by the end of this century, they will have a very modern fleet of at least T-72 tanks.

In the meantime, we will have 7,800 M1 main battle tanks of which 3,200 will have the 105 millimeter gun. So even though we have 7,800 tanks, 3,200 of those are really antiquated in terms of the gun capability on those vehicles.

Great powers build tanks, and the U.S. will be left with no capability, except at great future expense and time. The Soviets thus will have given up nothing without ever going to the negotiating table and U.S. forces risk being greatly outnumbered and outgunned by any Soviet client countries around the world at the turn of the century.

M1A2 TANKS

We believe that there is a way to address all of these problems and opportunities, and, frankly, we only need a little help and I believe we can help solve this problem, because we are in a position to leverage small congressional dollars into an overall solution.

Our suggestion is that the U.S. Army procure in the fiscal year 1991 budget M1A2 tanks at a minimum level adequate to support an internally price-competitive tank. So we are asking for a continuation of the U.S. commitment so that we can be price-competitive in the international arena. Without some ongoing U.S. production to assure our allies that the U.S. Army endorses the M1A2 configuration, it will be virtually impossible to achieve those levels of foreign sales to keep the U.S. production base viable. Supported by U.S. production, we will then be able to compete for an additional potential 1,300 main battle tanks with a very large export value in terms of about $10 billion. This entails two actions.

The first is continuation of A2 production at a minimum sustaining rate and/or conversion of earlier model Abrams to a M1A2 for the U.S. Army, and two, export production. Together, these actions will keep tank unit costs at an affordable level. Specifically, we are suggesting that 58 of the 163 M1A1s in the fiscal year 1992 budget be converted to additional M1A2 production for a total of 120 M1A2 tanks. This provides two operational battalions of M1A2 tanks and meets our international support base within the U.S. Army. In addition, we then suggest that long lead funding be provided for either M1A2 production at a minimum sustaining rate or for the Abrams configuration program in the future. Since there is already $110 million, it would take very minimal additional funding to do that.

Now, we believe this is a workable solution to continue our modernization of our tank forces and to retain our essential and critical national resource. I appreciate your consideration and we are ready for your questions.

[The statement of Mr. England follows:]

Record Version

Statement by:

Mr. Gordon England
Vice President - Research and Engineering
General Dynamics Land Systems Division

Before the
Subcommittee on Defense
Committee on Appropriations

United States House of Representatives

Second Session, 101st Congress

The United States Tank Industry

21 June 1990

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21 June 1990

PREPARED STATEMENT FOR HOUSE APPROPRIATIONS SUBCOMMITTEE ON DEFENSE

Mr. Chairman
Members of the Subcommittee

It is a privilege for us to appear before the Subcommittee on Defense to present our views on the real possibility of America's losing its entire tank industry. This is a decision with major implications for the U.S. economy, the defense industrial base, the work-force which has loyally served it for years, our military readiness and relations with our friends and allies.

U. S. TANK PRODUCTION ESSENTIAL

INDUSTRIAL BASE CONSIDERATIONS

- TECHNOLOGY AND MANUFACTURING UNIQUE -- NO OTHER MILITARY OR COMMERCIAL EQUIVALENT
- REALISTIC TECHNICAL IMPROVEMENTS REQUIRE SOME PRODUCTION AND FIELDING
- SUPPLIER BASE WILL NOT RECOVER FROM SHUTDOWN
- RESTART PRODUCTION WILL COST ABOUT $3B

SUPER POWER CONSIDERATIONS

- MODERNIZED HEAVY ARMOR IS FUNDAMENTAL
- ONLY HIGH CAPACITY HEAVY ARMOR PRODUCTION LINE IN FREE WORLD
- U. S. EQUIPMENT SALES PROVIDE LEVERAGE WITH ALLIES

SOVIET/MULTI-LATERAL THREAT CONSIDERATIONS

- U. S. NEEDS HEDGE AGAINST RESURGENT SOVIET THREAT
- MULTI-LATERAL THREAT WILL CONTINUE/INCREASE
- PRODUCTION RESTART TIME LONGER THAN NORMAL TIME AVAILABLE TO RESPOND TO CRISIS

COMMITMENTS TO ALLIES

- EGYPT (555 M1A1's)
- SAUDI ARABIA (315 M1A2's)
- UK
- OTHERS

OPERATION & SUPPORT

- COMMON EQUIPMENT AMONG ALLIES
- INTEROPERABILITY IMPORTANT
- LESS COST

TRADE CONSIDERATIONS

- U. S. JOBS AND TAX DOLLARS
- MAJOR U. S. ADVANTAGE IN HIGH TECHNOLOGY WEAPONS
- IMPORTANT TO U. S. COMPETITIVENESS
- LOWER COST FOR U. S. BUYS

The FY 91 budget contains funding for 163 M1A1 Tanks and 62 M1A2 Tanks. It also contains $110M to terminate tank production at the Detroit Arsenal Tank Plant in 1991. We are uncertain of the $110M figure, but Army testimony before the House Armed Services Committee indicated that amount.

If present plans unfold, tank production will be terminated when the FY 91 tanks are completed in early 1993. At that time the Lima Army Tank Plant will be placed in mothball status. This close-down of all U.S. tank production facilities is based on an Army strategy to reduce near-term production expenditures, and to shift emphasis to research and development of a new Armored Systems Modernization Block III tank to be in production by the turn of the century. No administration since 1939, Republican or Democrat, in peace or war, has been willing to consider such a risky strategy.

While this approach reduces budget demands in the near term, we do not believe adequate consideration has been given to the implications that this long break in production will have on our domestic industrial base or on commitments already made to foreign friends and allies. Nor does it take into consideration the cost -- about three billion dollars -- of reconstituting the tank industry in the late 1990's.

Under the proposed FY 91 budget plan, the last M1A2 tank for the U.S. Army will be produced in early 1993, with a new Block III tank coming on-line in 1998 at the very earliest. A minimum production break of at least five years will exist. Unfortunately, this is far more than a break in production. The tank industry builds an agile sixty-eight ton machine capable of traversing the most rugged terrain, and capable of withstanding penetration of high velocity ammunition. This industry consists of thousands of firms with many thousands of skilled workers, and manufacturing know-how that has been developed during the past 50 years of uninterrupted U.S. Army tank production. Unlike aircraft programs, of which 18 are contained in the FY 91 budget, there is only a single tank program. If the Congress decides to shut down an aircraft program, the country will still retain a strong aircraft industrial base. In the case of the single tank program, the same action will result in the complete loss of this special industrial base. It is important to appreciate this point. A five year R&D program can sustain some design engineering talent but it cannot sustain an industry.

General Dynamics Land Systems Division manages for the U.S. Government over four million square feet of dedicated tank fabrication and assembly facilities that contain unique and modern manufacturing equipment. Our thousands of suppliers have additional manufacturing capability. In our combined manufacturing base we have a multitude of specialized tank processes such as flame cutting, welding and machining of high hard steels. There is a blend of many skills and technologies, coupled with the art of tank production, that have been developed. With no commercial equivalents in many of the tank process and technology areas, this accumulated knowledge will be greatly diminished if not lost when tank production is stopped in 1993.

The thousands of firms which make up our supplier base will not recover from a production shut down. A survey of our suppliers revealed that 15 percent will go out of business or will close down plants or portions of plants dedicated to tank production. All report a significant negative impact. The result will be the loss of critical skills and production capability, including surge capability, if the future need arises. In a crisis, we would also lose the military and negotiating leverage associated with the ability to respond when needed.

It would be extremely difficult and probably cost prohibitive to restart production from a cold base to meet future crises or wartime requirements of the U.S. military. Most likely, funding to restart will not be available until an emergency exists and the time to produce will be too lengthy to respond to the emergency. We know from experience that rate acceleration even from an existing base is lengthy. For example, after the 1973 Arab/Israeli war it took the Chrysler Corporation five years to increase its production rate from 30 to 130 tanks per month. The 30/month warm base also provided the opportunity for the U.S. Government to assist a favored nation. Without that base it is unlikely that tanks would have been shipped to the Middle East from U.S. Army stocks. Our recent experience at Electric Boat is also very revealing relative to the loss of skilled workers. At the end of a 103-day production interruption due to a strike in 1988, 1,500 skilled workers did not return to the job. Many of those skills are still short today. After any prolonged tank shut down, it is prudent to forecast that the entire skilled work force for tank production will be lost.

It is also prudent for the U.S. Congress to consider the large cost to shut down and then to restart from a cold base. Our analysis has shown that the total cost of shutdown and restart from a cold base is about three billion dollars. We cannot simply begin ordering parts and assembling tanks after a five year production break. Thousands of firms in the supplier base must be painstakingly requalified. There is no shortcut to this process. In addition, if we shut down tank production, we could lose all of our currently projected foreign exports. This would create a loss of employment of over 500,000 man years, direct and indirect income of over seventeen billion dollars, and a loss of tax revenues of over three billion dollars.

I am sure you are aware of our government's foreign sales commitments. The United States has an agreement with Egypt to provide 555 M1A1 tanks over ten years as part of the security assistance arrangements flowing from the Camp David process. This commitment was made by our government based on planned U.S. Army multi-year procurement of 516 tanks per year over the same period. The per unit cost of these tanks for Egypt was thus predicated on continuing U.S. Government procurement. But the Egyptian program alone cannot sustain the U.S. tank production base, nor can it produce a tank affordable to other potential foreign customers. The proposed shut down of U.S. production threatens the viability of Egypt's nearly completed M1 assembly plant at a cost to that nation of about $750M.

As you know, the Government of Saudi Arabia has also requested procurement of 315 main battle tanks of the latest M1A2 configuration. This procurement was duly notified to the Congress and cleared without objection last year. All too often our allies in Saudi Arabia have been disappointed at the lack of U.S. Government support for their legitimate defense needs. Other international opportunities exist in other Middle East countries, Great Britain and Sweden.

General Dynamics believes that there is a way to address all of these problems and opportunities. The United States can maintain its tank production capability in part by focusing efforts to offer an M1A2 tank in the international market place at a competitive price. Our M1A2 main battle tank is the system of choice of our international customers, if it is available.

We therefore suggest that the U.S. Army procure in the FY 91 budget M1A2 tanks at a minimum level, adequate to support an internationally price-competitive tank. Without some on-going U.S. production, or a Abrams Block II Conversion program to assure our allies that the U.S. Army endorses the M1A2, it will be virtually impossible to achieve a level of foreign sales which will keep the U.S. production base viable. Supported by a "trickle" of U.S. new or conversion production, we will then be able to compete for an additional potential 1,300 main battle tank exports, with a total program value in excess of ten billion dollars.

Moreover, if we cannot sustain the international production base, we will lose valuable political leverage abroad and the cost for any future U.S. Army tanks will increase. The Germans, British, French, and quite likely the Soviets, are all waiting anxiously to take these exports away form the U.S. Germany is already a strong competitor in the U.K. competition. In addition, we call your attention to a 6 April London Times article which details a British firm's strategy to secure the Saudi Tank sale for itself in light of the declared U.S. Army plans for M1A2.

The Soviets are continuing to produce first line main battle tanks at a rate of over 1,500 per year in three plants (after shutting down one). By the turn of the century they are projected to have a totally modernized tank fleet of over 40,000 tanks of at least T-72 configuration. Meanwhile, the U.S. Army under current plans will have about 7,800 M1 series tanks of which some 3,200 have only the 105mm gun. Great powers build tanks, and the U.S. will be left with no capability, except at great future expense and time. The Soviets thus will have given up nothing without ever going to the negotiating table and U.S. forces risk being greatly outnumbered and outgunned by any Soviet client countries around the world.

In summary, stopping U.S. tank production for a period of five years would destroy an industry the U.S. has maintained in peace and war for more than 50 years. It would (1) force dispersal of a highly skilled work force; (2) replace an industry with a handful of engineers building one-of-a-kind prototypes by hand; (3) abdicate the U.S. leadership role in armor technology; (4) forfeit the international tank sales market to Germany, the U.K. and France; (5) dramatically increase the cost of a future tank by adding to it the cost of rebuilding an industrial base; and (6) severely limit U.S. ability to respond rapidly to the needs of U.S. allies such as Israel.

We recommend an alternative strategy to bridge the gap until a new tank is needed. This entails two actions: (1) Continuation of M1A2 production at a minimum sustaining rate and/or conversion of earlier model Abrams to an M1A2 for the U.S. Army, and (2) export production. Together, these actions will keep tank unit costs at an affordable level. Specifically, we suggest that 58 of the 163 M1A1's in the FY 91 budget be converted to additional M1A2 production for a total of 120 M1A2 tanks. This will provide two operational battalions of the M1A2 tanks, and will meet our international customers' desire for an operational and support base within the U.S. Army.

We also suggest that long lead funding be provided for either M1A2 production at a minimum sustaining rate or for an Abrams conversion program. In the FY 91 budget this would require minimal funding increases that could mostly be offset by the $110M included to close the Detroit plant.

We believe this is a workable solution to continue modernization of our tank forces, and to retain an essential and critical national resource.

Thank you for your consideration. We are ready for your questions.

MINIMUM PROCUREMENT RATE FOR M-1

Mr. MURTHA. You didn't give us a figure of what the minimum procurement figure could be. Do you want to give us a figure for the record here?

Mr. ENGLAND. Yes, sir. The necessity of the curve for our program in terms of price competitiveness is 300 to 400 vehicles a year, so 360 vehicles a year is the curve that makes us, we believe, price competitive with the international marketplace.

So a combination of international sales and new build at a 360 level, we believe, would be a price competitive rate.

Mr. MURTHA. The Army has told us that, 120 a year would be $942 million in 1991, 240 a year would be a $1.033 million, and 360 would be $1.1 billion.

So the cost comes down substantially if you go from 240 to 360 vehicles; is that accurate?

Mr. TRUXELL. Yes. Mr. England was saying that we have inquired of all of our suppliers on a variable quantity basis and the sharp break in the price occurs at about 360. When you get above 360, the price reduces substantially, starts to break at 240.

Mr. MURTHA. Actually, for $70 million, you get 110 more tanks, 120 more tanks, is that accurate?

Mr. TRUXELL. Well, you know they have got the GFE material in there, too.

Mr. MURTHA. This is the figure that the Army gave us.

Now at the 360 level you are talking about a total production rate. That doesn't mean the Army would have to buy that many. That just means you would have that rate to be able to produce them economically.

Mr. TRUXELL. Yes, sir.

Mr. MURTHA. That would include foreign as well as domestic buys?

Mr. TRUXELL. That is right.

M1A2 SOFTWARE

Mr. MURTHA. With the A2, is there a problem with software? Every system that comes up, it seems like we start having problems with software.

You have heard about the C-17. You have heard about the many software problems. Have we got a software problem here?

Mr. ENGLAND. No. As a matter of fact, our software is, I think, a classic case of other firms to follow on how to do the software.

Our vehicle has, frankly, 90,000 lines of code. I only mention that because we have almost 70,000 already finished and operational in the vehicle and we do not go to production until late 1992.

Our first development tank will be delivered in a few days and the first prototype in six months and our software is in excellent shape.

Mr. MURTHA. When are you going to demonstrate this? Are you on schedule with your demonstration?

Mr. ENGLAND. Yes, sir, we are now. We have a prototype tank, an engineering model tank which today is being made with the hull and turret, so they will be operated together today. We will deliver the first prototype tank, which is the near-production configuration delivered to the Army for the test program—is delivered in December of this year.

Mr. MURTHA. That is the prototype?

Mr. ENGLAND. Yes, sir.

Mr. MURTHA. Where is the money coming from for this?

Are they paying you up to this date? Is there a problem?

Mr. ENGLAND. This is Army money. And, yes, sir, there has been a problem——

Mr. MURTHA. This is R&D money?

Mr. ENGLAND. Yes.

Mr. MURTHA. There is no money in for production?

Mr. ENGLAND. That is correct, sir.

Mr. MURTHA. And the conversion program, what are you talking about there?

Mr. TRUXELL. Yes. In the fiscal year 1991 budget, as Gordon said, there is money currently for 62 M1A2s for production. He is recommending that 58 be converted from A1s to A2s for a total of 120 in fiscal year 1991, but the last time I saw it, there were 225 tanks in there, 163 A1s and 62 A2s.

CRITICAL SKILLS IN TANK PRODUCTION

Mr. MURTHA. The thing that has concerned this committee the most is the loss of skills that we hear so much about. What specifically are we talking about here? I hear like 700 different type welders and so forth, it took years to train these people.

Mr. TRUXELL. We have experts here. I might refer that question to Jim Coakley. He is our UAW International Representative. Maybe he could lead off and you might like to have his comments supplemented.

Mr. COAKLEY. I would like to talk about the skills of the work force. For the specific question of welding, I will defer to the President of the Lima Army Tank Plant where the welders are. He is familiar with the training requirements and certificates that are needed.

Then I will speak to the skills of the other workers.

Mr. COLE. Our welders are a very skilled work force. There is 26 different certifications needed to build the tank, and our welders average like 6.3 certifications apiece. When they are hired in, they have got to be experienced welders with a lot of experience behind them and there is an eight week school that they go through at the tank plant to get the certifications needed.

When they are hired, when the tank plant started, there were only 25 percent of the applicants that were welders that applied that could pass the test that would get them into school. They had enough experience or were good enough to get into the school.

Then graduating from the school eight-to-ten weeks later was like 75 percent successful. When they were first hired and building this work force, they were hired from most all the eastern part of the United States and as far south as Alabama for the Ohio plant.

So you can see we need welders from all over to get that many good welders.

Mr. MURTHA. If we shut down for seven years, what will happen? What would be the problem? Could you go out in the market and call these people back? Would they lose their skills? What do you predict here?

Mr. COLE. No, sir. They wouldn't lose their skills, but they would certainly be using them someplace else. They are good enough that they are going to have to move.

There is no work around the Lima area. The unemployment level right now is close to nine percent. They are not going to stay around there.

Our work force is going to have to leave the area to find jobs, to find their livelihoods.

Mr. MURTHA. As long as this line has been going, I assume you hire replacement welders as others leave. If you started out again, is training welders a major problem, or is this just one of the problems you would run into?

Mr. COLE. Welders will be only one of the problems. We have a skilled trades line. We have machinery in the tank plant that is unique only to the tank plant. It is one-of-a-kind machinery.

The repair of that, the programming of that is a skill that is learned at the tank plant. It is not that you couldn't hire someone from the street or from a work pool and say come do this job—they wouldn't be familiar to be able to do that without a lot of training.

Mr. MURTHA. Thank you.

Mr. COAKLEY. I would like to comment on the welding.

When Darrell said there are 26 certificates required for the welding application, each welder must know at least six, or be certified in six.

You talk about the 25 percent rate of those applying to get into welding with experience still fail to get into the plant to meet the requirements that you need. Once you get in and you take the additional eight weeks of welder training that doesn't give you those additional certificates.

That comes after you are on the job and based on what the jobs are, you need to be trained in positional welding, horizontal, overhead, vertical, whatever it is, and that is additional training at additional schooling and experience, and probably the biggest problem of a shutdown in terms of skills would be the welders, not only because of the vast training that they need to get the schooling they need, but in terms of numbers. It is the largest single work band that we have and, as Darrell said, it was—we had to try to get workers from 20 different States into the Lima area just to get enough welders. A couple of years ago, we had well over a thousand welders at that time.

But to get to the rest of the work force, even when you talking assembly, you have an assembly line, but it is actually stations, because it moves once a day. Each tank is hand-built and when you are talking about assembly, you are talking about having an electronics background, electrical knowledge, putting in circuitry, wiring harnesses. He is making many decisions on his own within that vehicle and our assemblers don't know one operation. It is an educational process where you go from one station to another and you have to know that vehicle completely in order to hand-build it.

Probably the second highest skill band we have would be the machinist. Certainly our Scranton, Pennsylvania plant is predominantly a machine plant. Our Detroit tank plant is a very large machining plant. There is a minimum of anywhere from two-to-five years managing experience before you are even accepted to get into the plant. Once you are in the plant, you have to have additional CNC training starting at 40 hours off the job and paid, and there is also a need for cross-sectional training within the machines. None of our machine operators are just button pushers, and they are not trained specifically on one machine.

They must know several machines, because the work force is limited there and you cannot, for example, on vacation replacements, just go outside and get a normal machinist to take the place of people that might be off. Our internal work force must take that up and if you are not cross-trained, you cannot do that. Even painting—it takes a vast amount of time to completely train people to be able to do those functions. I can recall when I hired in at the Detroit tank plant, I was working on the M-60 at the time the M1 came into being and we had a work force in the tank plant already that we felt was trained.

We were going to use that tank force to now build the new M1 and it took considerable time because of the vast difference in those tanks. If we were to shut down completely and ask a work force not familiar with the tank operation to build a new vehicle, I think you are talking years, years, and certainly to get the standards of quality that we are at now.

As you know, we have a CP square in the Detroit tank plant. You would be talking 10 to 12 years, I would say, to get to that level, the quality level that we are at now.

Mr. **Murtha**. Mr. McDade.

COMMERCIAL VERSUS TANK PRODUCTION SKILLS

Mr. **McDade**. Thank you, Mr. Chairman.

I want to pursue a little bit with you the difference between the commercial type of operation that exists and what you fellows do, because a lot of our colleagues think, well, it is just another commercial operation.

You are talking about the kind of welders that you have been talking about. Is there any way to differentiate between a skill level of a welder at that tank plant, which is not an assembly line tank plant—what is the difference between the degree of skill of that welder that you had to look for in 20 States and the skill of a fellow who is working on a ship or in some assembly plant someplace?

Mr. **Coakley**. It is night and day. I represent all General Dynamics in the UAW and Chrysler Industry. Automotive is automated welding and you are talking about the armored plate welding, the casting welding, it is a difference between a labor and a skilled tradesman.

If you are a skilled trade maintenance welder, you have to have a minimum of eight years experience, and those welders we have, they go from a skilled trade eight or more years experience and education and apprenticeship. If they go to production welding they must be trained.

The government requirements are extremely stringent and the beading, the position, the arching—I don't know all the technical aspects, but it is considerable.

Mr. **McDade**. But the apples and oranges comparison is an interesting one. I think it seems to me I heard in a briefing that there are 15 miles of welds in an individual tank. Is there a number like that?

Mr. **Truxell**. When it is all done manually, the amount of weld that the person can put on is limited. At one time, there were 23 miles.

Mr. **McDade**. In an individual tank?

Mr. **Truxell**. Right. But that is because some of the joints, you make a dozen passes. Darrel could talk about this better than I could.

We have some robots now that can make that weld joint in a couple passes.

Mr. **Cole**. Manual welding where you put the root passes and perhaps two or three other passes over the top, the robot can put that much weld in on one pass or two, the welds—we might also mention the difference in welders, between our welders and perhaps some other industry is the x-ray tests they have to pass in certain areas of the tank.

The weld is x-rayed as part of the inspection. And also, remember, our welds are tested under a ballistics test also.

Mr. **McDade**. A little different than the normal welder might be used to operating on?

Mr. **Cole**. Yes, sir.

Mr. **England**. The unique thing about the tank and why this is so unique in terms of skills is because we deal with very high art armors and the tank, unlike any other product in the military or commercial, is designed to be hit by enemy fire.

We take hits and survive. That is a characteristic of a tank is to be able to be hit and survive.

Mr. **McDade**. So when you look at the vehicle coming out, it is not in any sense a commercial vehicle, is it?

Mr. **England**. No, it is very unique in almost all attributes. I will go back to welding—because of the large ballistic shock, to be able to take an incoming round fired from another enemy tank, a 125 millimeter gun firing at you, you must absorb the blow, which means the weld joints have to be ballistically correct in terms of being able to survive and you have to not get cracking in the armor.

Mr. **McDade**. No other vehicle built in the world is built that way?

Mr. **England**. That is correct.

Mr. **McDade**. Nothing is built to take that hit, have its crew survive and continue to operate in a hostile environment.

Mr. **England**. That is correct.

Mr. **McDade**. A lot of people are under the impression there is nothing to this, you turn it off, you go to a commercial vehicle manufacturer and say to him make me a tank. A lot of people think they can convert that over pretty quick and it is not much of a problem.

Mr. ENGLAND. No way. The skills that make up tanks in design and manufacture, there are no courses people take to learn about tanks. This is a knowledge that has been built up over 50 years of continuous tank production in the United States.

It is vested largely in our manufacturing, engineering quality people and materials people. There is an in-house knowledge to be able to design and build these type of systems and if that body of knowledge is dissipated, my own judgment as the engineer responsible for the program is it would be impossible to bring back together the requisite skills in the future because there is no in-house body of knowledge that you can draw upon in the future once you dissipate it.

So it is a very important resource that gets passed on between our older engineers, our older production people, our younger ones, and between those people who work the program.

Consider a tank itself. The gun and turret is a 25 ton turret that rotates and is stabilized to have very fine accuracy to fire the main gun and hit a target several thousand meters away.

The ability to do that with something weighing 25 tons, no one else in the world does that except someone in this business. We are the only ones in the United States and, of course, the Soviets——

Mr. McDADE. The ability to move the tank at a certain speed, what is the speed of the tank?

Mr. ENGLAND. It is governed at 45 miles an hour. It has special engines, special power trains, unique tracks, sprockets, suspension. The vehicle weighs 68 tons. It is mobile. It can do it over very rough terrain, in water, in all types of environments, and while moving, fire and accurately hit and kill a target and take an incoming round and survive.

No other vehicle in the world can do that.

Mr. McDADE. The learning pyramid, you said, 50 years?

Mr. ENGLAND. We have had a tank manufacturing capability in this country, peace and war, for 50 years and I would say that this is a very risky time to decide that we don't need it.

Mr. McDADE. In addition, I would like you to comment and you also, on behalf of the UAW. It is an apples and oranges comparison to talk about shifting this over to a commercial application once you stop the line? Do you agree?

Mr. ENGLAND. Yes, sir.

Mr. McDADE. You have explained some of the reasons why—anybody in the UAW disagree with that argument?

Mr. COAKLEY. Not at all.

Mr. McDADE. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Livingston.

M1 TANK ENGINE

Mr. LIVINGSTON. I have a question about the tank engine. Last year's 1990 appropriations bill approved the Army request for a multi-year procurement of engines for the M1 and at that time the advantage to the Government from a multi-year procurement included lower costs, continuity of production and stabilization of the industrial base.

I understand that engine builders have circulated a plan for continuing a multi-year buy of engines for fiscal year 1991, and beyond. My question is, would the Army realize the same advantages from a multi-year that is based upon the known requirements today regardless of what is decided about tank production, whether we stop it this year as originally proposed, or we continue tank production or enter into some type of tank conversion program.

Mr. TRUXELL. I would say that the—of course, it is essential—they are an essential link in this chain of our tank industry and without the gas turbine engine, we would not be making any international sales, so even though the rate goes lower, a multi-year program is even more important.

A multi-year contract for a lower volume is even more important than at high volume because you have many suppliers that can batch build and store, but they need assurance to buy the futures on the material and we think it makes more sense and after we get by fiscal year 1991, we think as much of the industry as possible should be on a multi-year basis. We are just finishing up a multi-year program where we have made substantial savings for the customer. At the end of that program, we give him the savings and start negotiating again.

Mr. ENGLAND. We save twice, because not only do we get better prices, but that makes us more competitive in the international arena and gets more sales because it lowers the total cost.

Mr. LIVINGSTON. So all roads point to multi-year as being the plus?

Mr. ENGLAND. It certainly appears to be very desirable.

Mr. LIVINGSTON. Thank you.

Mr. MURTHA. Mr. Hefner.

COST OF CONTINUED TANK PRODUCTION

Mr. HEFNER. Thank you, Mr. Chairman.

Just one question.

I see where if you closed down now and had to open up again in the late nineties, you estimate the cost at $3 billion. How many tanks would you have to build a year at one plant to make it feasible to keep the plant open?

Mr. ENGLAND. Sir, as we have perhaps earlier stated, the economic quantity is 360 vehicles a year. The necessity of the curve in terms of material and tank cost is between three and four hundred vehicles a year and 360 appears to be the best number in terms of an economic quantity.

Mr. HEFNER. Let me see if I follow you and stop me if I don't. If you made 350 or 400 tanks a year, and in 1999 you come on line with the new family of tanks or the new generation of tanks, how much would we have to spend between now and 1999 in one plant if we were producing at 350 tanks a year?

What I am trying to get at is if we do what has been proposed it would cost us $3 billion to reconstitute the tank industry in the late 1990s and we wouldn't get anything for it, but in the meantime, if between now and 1999, we kept a plant open and built tanks, we would keep the technology there and the people there to go into the new generation of tanks, does that make any sense?

Mr. **England**. It makes a lot of sense. How much it would cost the U.S. Government would depend on how successful we are in terms of foreign sales.

Mr. **Hefner**. Just give me a rough number, to produce 350 tanks a year, how much would that be?

Mr. **England**. At a rate of 360 a year, we estimate the unit cost would be about $4 million a vehicle.

Mr. **Hefner**. Sometimes you can be cost conscious and find yourself being penny wise and pound foolish.

It seems to me if it is going to cost you that kind of money, we should be getting something in the interim period, and let people keep their jobs. I understand we are not trying to make the defense industry a public works program but still we feel pretty sure that we are going to have a new generation of tanks coming in the late nineties, and it would seem to me that we should be getting something for that money that we are going to have to spend anyway .

Mr. **Sechler**. We talk about international sales. We talk about the good tank, the M1A2. That is definitely the tank of choice of many of our foreign potential customers.

It is recognized as one of the best tanks in the world, that it will meet the threat through the year 2000. Therefore, there is a good international market potential.

If you close the line in 1991, there goes up to a $10 billion worth of potention export sales. Depending if you keep a small trickle of production going that we could add to that good potential of international sales of 200-and-more tanks a year, it is a small cost to amortize that constant $3 billion cost that we talked about earlier, which could double.

So, therefore, what does it cost the taxpayer for this? If we had the right beginnings of international sales, which is out there, there are 2,000 tanks that we could sell between now and 1999 that with a small production base in the States, that would protect us and logistic support and please that international customer. I think it would save you money from the cost of it is the answer.

Mr. **Truxell**. Congressman, I might take a swing at that, too.

The actual cost to shut down and re-start is about $3.5 billion. If we were to continue to run and produce 1,320 tanks, that cost would be $5 billion 1990. The difference between the shutdown cost and the cost to build those tanks is about $1.660 billion; 1,320 tanks, you are paying $1 million for a tank worth $4 million. So it makes good economic sense to keep building at a low rate instead of paying all that heavy penalty to try and shut down and start up. I think you could not afford that start-up unless there was a crisis, and if there were a crisis, you wouldn't be able to respond to it adequately anyhow.

Mr. **Hefner**. That is the cost argument.

Now, the argument that you have to sell and the argument that is yet to be determined is are we going to have the next generation of tanks? We will have to be able to make a decision on that and sell it to our colleagues when the appropriate time comes.

That is assuming that you would keep only one plant open?

Mr. **Truxell**. Correct. Well, we actually have studied the one plant. It is uneconomical to move the machinery out of the Detroit tank plant and re-install it. I think we have pretty well agreed that if we keep production going at all, we will maintain machining at Detroit.

Mr. **Hefner**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Young.

FOREIGN MILITARY SALES

Mr. **Young**. Mr. Chairman, thank you very much.

I would like to go into a little more detail with you on the question of the foreign military sales. If the Army's plan goes forward and the Army doesn't buy anymore M1 tanks, do you have enough foreign military sales to keep the line open for a period of time?

Mr. **Sechler**. That is doubtful. Let me briefly explain.

We have a contract now for the 555 tanks in Egypt, a M1A1. They build a hundred a year decreasing for the next five years. We anticipate that maybe as early as this week we will have the agreement signed between the United States Government and Saudi Arabia for 315 more tanks adding another 100 tanks a year. That is 200 for the next three years. Granted, there are other potentials of another 1,500 tanks, which comes on line later on, maybe next year. But, frankly, in 1991, the 225, we are okay in 1991, but the problem that we have is these are M1A1s and M1A2s.

In order for us to be competitive internationally, we have to have a M1A2 base in our inventory. Our foreign customer expects our U.S. Army to have that tank operational, and a logistical support base established.

If you don't have the trickle production, we would have good international sales for a year or two, but it would be doubtful because the Soviet Union, the French, U.K. and Germans, are also hurting for sales. Since we have the good tank, it would be a shame to lose $10 to $15 billion worth of export sales.

Mr. **Young**. Are any of these foreign military sales A2s?

Mr. **Sechler**. Yes, the 315 tanks for Saudi Arabia are M1A2s.

Mr. **Young**. If the United States Army is no longer a customer, what does that do to the relationship now and, say, five years from now with your foreign customers? Does this reduce their confidence in our ability to provide them a product at the price that we talked to them about today or are they worried that we may have to raise the price because of a smaller production?

Are they talking to you about that?

Mr. **Sechler**. Yes. I just returned from a Middle Eastern trip and that subject was broached as if there are only 60 M1A2s. What support from the U.S. Army could they expect? One thing the M1A2 is 90 percent common with the M1A1, so we have about a ten percent unique requirement.

I explained that. The U.S. Army has said, yes, they will support the M1A2 to their foreign customer, but it is a concern on how we do that with a ten percent—if they are in the U.S. Army, and there is a trickle production, that is solved.

I call trickle production that which would sustain a U.S. Army capability of logistic support, 100 to 150 a year.

Mr. **Truxell**. We need to run 360 a year to get an economical price. Foreign sales cycle up and down.

There needs to be a firm U.S. Army base, whether it is 120 or 240 a year, we might have to vary that to stay at a stable 360 depending on the incoming foreign orders.

Mr. **Young**. If we are no longer a customer, is it safe to say that the business will, in effect, dry up as far as foreign sales. It is just not going to last very long?

Mr. **Sechler**. That is our experience that if you don't have a good base in your own services, it is very difficult to sell international.

RE-STARTING PRODUCTION

Mr. **Young**. You close the line and get the cost that you mentioned—factor in shutdown and re-open the lines; you are buying the tanks for a lot less if you just keep the line open. How long would it take you if you closed that line down completely to have that line producing again?

Mr. **Truxell**. Well, it is four-to-five years in my judgment. We just discussed the problem is going to be where do you go to hire these people. We went through a few thousand people—we put a few thousand people through our welding school to wind up with 700.

We would have to hire a whole new work force and re-train them. We went into M1 tank production with a skilled M60 work force and eight years ago we had 22,000 hours per unit. Today we have 5,000 hours per unit.

Now, that is starting with a skilled work force. If we start with people off the street, it is—the cots are going to be prohibitive and we will not be up in the quality production, I would judge, for four to five years and maybe some of the UAW representatives might have an idea here because they certainly are going to have to move and somebody has to entice them to move back to Lima.

Mr. **Coakley**. Lima would be up in four-to-five years, but you won't reach any quality for ten-to-twelve years.

Mr. **Young**. If you closed the line, would you store the tooling?

Mr. **Truxell**. The Army would want us to preserve it. You ought to recycle the tooling every once in a while. It is going to become obsolete. You couldn't get people to go back and do that, so the only alternative is to mothball it and walk away from it and hope when you try to start up again in seven or eight years, you can get spare parts and find somebody that knows how to run the machine.

I know that we have many pieces of one-of-a-kind equipment. When you are handing 20 and 30 ton pieces of material like hulls and turrets, there isn't that kind of equipment around the world.

Mr. **Young**. When you close down the line, it is tough to start it up again and in a crisis situation, we would be without any kind of industrial base to build this kind of a tank?

Mr. **Truxell**. That is correct.

Mr. **Young**. If that situation developed in the world, and we hope it does not, does anybody believe we would have four or five years to get ourselves back on our feet?

Mr. TRUXELL. I certainly don't think so. If there were no crises, I don't think you could afford to re-start. If there is a crisis, you couldn't respond to it.

Mr. ENGLAND. My judgment is, frankly, that while we can all talk, it will be four to six years. The reality is if we shut it down, when you consider everything, it will not start up again because it will not ever be affordable to start up again. The decision to shut it down, in my view, is a very permanent decision that says we will not have a tank capability in the United States.

Mr. YOUNG. And to think that the line could survive strictly on foreign sales is a pipe dream.

Mr. TRUXELL. That is correct. We need to have U.S. Army support.

Mr. YOUNG. Thank you.

Mr. MURTHA. Mr. Miller.

EMPLOYMENT IMPORT OF PLANT CLOSURE

Mr. MILLER. Thank you, Mr. Chairman.

I want to recognize the fact that we have Congressman Mike Oxley here, who represents the Lima, Ohio area. He will not be saying anything as it is a policy of the committee for other members not to ask questions. I know he would be ready to go and I wanted to explain he will be listening closely to what will affect his people in Lima, Ohio.

One of the questions that we had awhile ago addressed the fact that it takes time to start to produce engines, transmissions, to train the welders we need for the production of the body of the tank and those responsible for installing the electronics.

Again, to echo what Mr. Hefner stated, we are not supposed to look at the economy and consider defense procurements as a make-work project or a public works project, but by the same token, the production base is very important—sometimes it is like buying insurance.

In all of the different professions that it takes in order to put a tank completely together, how many people would be affected? Going into the background with the electronic people, with the engine people, people that will furnish the transmission—have you calculated how many people would not be working if the M1 tank were stopped completely today?

Mr. ENGLAND. Yes, sir. That is 98,000 people, and that consists of over 600 first-tier suppliers, plus all of their suppliers, and that is many thousand more in terms of suppliers. It has been estimated as high as 2,000 companies would be affected, but over 600 are first tier, and that is 90-some thousand people in total that work on the tank program.

Mr. TRUXELL. That is lumped from the other jobs that they support, too.

Mr. MILLER. I guess we go beyond that, because each one of those jobs are supporting other jobs within the community.

Mr. TRUXELL. Yes, that has been factored in the 98,000.

FOREIGN TANK SALES

Mr. **Miller**. We have some information concerning the sales to Saudi Arabia, and apparently as a contractor, you will be furnishing something like 350 tanks; is that correct?

Mr. **Truxell**. 315 is the initial quantity.

Mr. **Miller**. They are talking about increasing that, as I understand, to more than 700. How does that stand now? Is it possible that the production lines that we have working now would continue if they go that far?

Mr. **Sechler**. When I was in Saudi Arabia recently, they revealed that their requirement is 700 tanks. They have requested now for 315.

They intend to ask for the remaining tanks for the total of 700, maybe not this year, but in the future. The reason Saudi Arabia set as a requirement 700 is they would desire one type tank for operational maintenance and other reasons, and they prefer the M1A2.

Mr. **Miller**. We have mentioned the Saudis and the contract there, but I understand you are building some tanks for Egypt now; is that correct?

Mr. **Truxell**. That is correct.

We have averaged around 90 a month equivalent tanks—a year, I mean.

Mr. **Miller**. Ninety a year?

Mr. **Truxell**. Right.

Mr. **Miller**. That sounded like an automobile production line for a minute. What about possible sales to Great Britain—how do we stand there?

Mr. **Truxell**. We are finishing up a proposal to the U.K. Their quantities, the same thing is happening to them as is happening in the U.S.

The quantities originally were at 600 tanks. They cut it to 300. They are talking 200 and possibility of 100. And they are banking heavily on their tank manufacturer, Vickers, selling to Saudi.

What Mr. Sechler said, with our acquiring the Saudi order, I think we have really placed Vickers in a non-competitive position and I would feel much more confident that we could win the U.K. business because they—certainly Vickers can't afford to build just 100 of a new challenger tank. So I would say we have got pretty good prospects in the U.K. for 100, and ultimately I think they will need more tanks. Whether it is 600 or not, their Parliament has yet to decide that.

Mr. **Miller**. I understand Sweden has been interested, too.

Have you been talking to people from Pakistan and Sweden?

Mr. **Sechler**. Yes. In Sweden, we have two tanks on demonstration in Sweden, M1A1 tanks. Sweden, I think, will look at the competition closely. The French and Germans, and the British are also in competition.

Depending on how competitive we can keep our tank price will say whether or not we can compete in Sweden. That decision is probably two years away.

Pakistan has problems financially now, but they are very interested in the tank. That is two-to-three years downstream yet before they would probably place an order and that order possibly would be quite small, 200 to 300 tanks if they go with the M1A2.

OTHER FOREIGN TANKS

Mr. **Miller**. What country and what corporation would be your greatest competition?

Mr. **Truxell**. Russia.

Mr. **Sechler**. The Soviet Union is going—I might mention another country, United Arab Emirates is showing high interest in the M1A2 tank. They are looking at 250. The Soviets are in competition.

In addition if you take the Soviets, they may well be able to furnish a tank at a price that is very competitive in their system that they use. If you discount the Soviets, then our competition is the Challenger II in the U.K. and the Leo II out of Germany. Those are two two main competitive tanks that we have to face in the international market.

When we look at Saudi Arabia, UAE, Kuwait, Pakistan and Sweden, it is the Challenger II.

Mr. **Miller**. The countries that would be challenging you and bidding on a group of tanks, are they subsidized by their government?

I might go further on that. Sometimes it is a little hard to say. I remember a few years ago, we had a great problem with steel from West Germany coming to our East Coast and dumped there at about the cost of our production and it was a matter of our trade ambassadors finding out whether it was subsidized.

It was not supposed to be subsidized, and while it was not directly subsidized, we found out that the West Germans had built apartment buildings close to the factory for the workers to live there.

Do you know of any problems like this where we would be competing against a subsidized foreign manufacturer?

Mr. **Sechler**. Whether or not they are subsidized is subject to interpretation of what the price is. The Germans with the Leo are building five a month. Their production rate at five a month has to be very costly. If you accounted for the money, as we do, it would be a prohibitive price to do five a month.

However, they tend to be competitive to us in the U.K. now in their price, so it would have to have some form of subsidy for them to be competitive. The French are competitive with a very small production and if the U.K. decides to go with their Challenger, the price of their tank would have to be subsidized, or they would be twice the expense it is now.

Yes, we are up against tough competition worldwide, because certain countries like Germany and the U.K. desire to maintain a tank industrial base and they do somehow come around to making their price competitive.

Mr. **Miller**. Thank you.

Thank you, Mr. Chairman.

Mr. **Dicks**. Let me ask one question.

Has there been any discussion of a possibility of consolidation of tank production activities in one plant? In other words, as I understand it now, you produce components in both plants. Has there been any consideration of trying to combine operations and do the entire tank in one facility.

Mr. TRUXELL. The only duplicate operations we have are the final assembly operations. Today 50 percent of the assembly is done in Lima and the other 50 percent is done in Detroit. In September 1991, our production rate drops from 60 a month to 30 a month and at that time we will terminate the assembly operation in Detroit and retain the machining operation in Detroit.

But that is the only duplicate operation that we have in our—the Land Systems Division. Every other part or operation is one of a kind.

RETROFIT PROGRAM

Mr. DICKS. One option is to retrofit the early version of the M1, which is currently fitted with a 105 millimeter gun, with the M1A1 120 millimeter gun. What possibility does this option hold for keeping production lines open?

Mr. TRUXELL. Well, either the M1 or the M1A1 can be upgraded to A2. In the case of the M1, it does have the 105, so it would entail significant changes in the turret, to the extent that we would be manufacturing a new turret, and in the hull, the M1 does not have the nuclear biological filtration system, so we would have to add that to the hull.

Mr. DICKS. Does the M1A1 have that?

Mr. TRUXELL. Yes, sir.

Mr. DICKS. I assume the M1A2 would have that, as well?

Mr. TRUXELL. That is correct. And with the weight of the tank, we would have to add new suspension systems. The cost to upgrade the M1 to a A2 status would be probably 30 percent or so more than the cost to upgrade a M1A1 to an A2, and that decision is going to have to be an Army decision. They will have to look at the benefits of the logistics, the operation and maintenance activities and the advantage of common ammunition, commonality and training and that will be a decision if they go in that direction that—we have provided them the cost information to make that decision.

Mr. DICKS. If you did that, would that alleviate the necessity of buying a new tank?

Mr. TRUXELL. Yes. Well, obviously to keep the industrial base, we need to maintain engine production, transmission production and fire controls, stabilization systems. We would depend on maintaining that part of the industrial base via foreign sales or hopefully some trickle rate of U.S. production.

Like I said earlier, we think the most economic rate is around 360 a year.

Mr. DICKS. 360 of what?

Mr. TRUXELL. M1A2s.

STATUS OF M1A2 PROGRAM

Mr. DICKS. Why would we go ahead with the M1A2s when there are serious questions about that tank? The GAO has raised questions about whether the costs have been clearly understood and there are other issues. Why not go ahead with the M1A1 for the foreseeable future, and then when we know whether the M1A2 is going to be as good as advertised, and whether the costs are going to be what have been prescribed, then make that move?

If there are questions surrounding the M1A2, why not just stay with the M1A1? That would keep the production line open, too, wouldn't it?

Mr. ENGLAND. First of all, the force is going to be smaller. We know that it is going to be much smaller in size and with less you need the best. We think the Army will want M1A2; our international customers do.

It is the weapon system of choice, because it is two times effectiveness of a M1A1. So it is twice as good in terms of combat effectiveness.

Mr. DICKS. What about the concerns that GAO has expressed. They say that the costs could be higher than predicted, that there are questionable enhancements, and that this is being done in a compressed acquisition scheduled.

Would you comment?

Mr. ENGLAND. The program has been in FSD for 18 months. We do not deliver our first production unit until late 1992, and our first development tank rolls out this month; the first prototype tank is ready in about three months. So the program, I will say it has been challenged in terms of full-scale development, but we are on schedule, the system is performing very well.

The costs are going down in terms of all our development costs. The largest uncertainty about M1A2 is will it go into production.

The supplier base is very concerned that there are only 62 units in the current fiscal year 1991 budget. The supplier base is very worried, and I don't believe will be responsive in terms of their very best costs until they know what the real rate will be in terms of a production quantity.

But we do not have development problems. There are no software problems. The GAO came in very early in the program.

Mr. DICKS. Wait a minute. DOT&E review found serious deficiencies in system description, software tests and evaluation planning and operational test description. A test and evaluation master plan, TEMP, change was provided in July, but it was also deficient.

The TEMP was formally disapproved August 14. The M1A2 does not have an approved operational test program at this time.

Mr. ENGLAND. That is true.

Mr. DICKS. How can that be consistent with what you just said?

Mr. ENGLAND. That report talks about the paper for the test program that will be conducted next year. You have mentioned a description of the test program.

It does not reflect on the vehicle itself, but on the availability of the Army facilities to do the test and there is a debate——

Mr. DICKS. Do you think we should start buying this tank before we test it?

Mr. ENGLAND. The test is not scheduled until next year.

Mr. DICKS. You are saying we ought to fund the tank before it is tested. I don't think that is going to fly.

Mr. ENGLAND. The test is completed before the milestone three decision. The problem is if there isn't funding in the budget in time to meet those schedules——

Mr. DICKS. Wouldn't the subcontractor be satisfied by continuing to build M1A1s?

Mr. ENGLAND. In addition to the M1A1 supplier base, there is also an additional M1A2 supplier base because of the number of additions and improvements to the vehicle.

Mr. DICKS. So there is a different group of people?

Mr. ENGLAND. Yes, and in addition, the international customers also prefer M1A2.

Mr. DICKS. Why would they favor M1A2s if it hasn't been tested yet?

Mr. ENGLAND. M1A2's combat effectiveness is twice the M1A1.

COMPARISON OF M1A1 AND M1A2

Mr. DICKS. Explain in what ways it is twice as combat effective. That is easy to say.

Mr. ENGLAND. It has lethality improvements, programmable rounds, far more lethal rounds developed. It will be incorporated into the program. In addition, it has far better target detection, surveillance and acquisition modes, so you can fire first and fast. In tank warfare, particularly the battle fields that are described today, the person who fires first typically wins and the person who can fire fast test typically wins, which means you need a very rapid target acquisition system and a very accurate rate of fire.

It has position location so—in the past, tank commanders did not know their locations, could not transmit locations of targets——

Mr. DICKS. Is the position location system part of the approved program at this time?

Mr. ENGLAND. It is in terms of the development program, yes, sir.

Mr. DICKS. What about the acquisition program?

Mr. ENGLAND. I assume that will not be decided until the milestone three decision.

But at this point——

Mr. DICKS. What is that?

Mr. ENGLAND. That is the full production decision.

Mr. DICKS. January of 1992?

Mr. ENGLAND. I believe that is correct. Yes, sir, that is correct. January of 1992, the milestone 3A, and that is then the full production go-ahead for the program in terms of full funding go-ahead at that time.

Mr. SECHLER. On Saudi Arabia, why did they agree to purchase 315 M1A2s? They looked at the tank 90 percent common with the M1A1. The ten percent unique difference is improvement in operational capability and maintenance, and they analyzed it and said that is the tank we want.

So we have 315 coming for Saudi Arabia.

Mr. DICKS. How many others do you have—I read that Kuwait, might want up to 200?

Mr. SECHLER. That is possible. That is a couple of years down the road. We have 315 for Saudi Arabia. United Arab Emirates, 250.

Mr. DICKS. Pakistan?

Mr. **Sechler**. 200, two years down the road. Sweden, 200, two years down the road. All these are M1A2s, though, that they are looking at. That will total up close to 2,000 tanks, that potential.

Mr. **Dicks**. Do Army estimates on the cost of the tank plant shutdowns and re-starts differ from GD's estimates of $200 million and $1.75 billion, respectively?

Mr. **Truxell**. No. We have supplied the Army the figures. They have added some costs of their own. Our properly defined estimates are the same.

When I say "properly defined", there is elements of start-up and shut-down costs and the maintenance costs that may or may not be in our figures or the Army's.

Mr. **Dicks**. You went through this, but so I will understand it, GD has estimated that the most economic rate of tank production to be approximately 360 tanks per year. Does the Army agree with this estimate?

Mr. **Truxell**. Yes. That is not the most economical.

As you go higher than 360 a year, obviously the cost per tank would go down, but it gets to be unaffordable when you get below 360, and the Army agrees.

Mr. **Dicks**. What combination of foreign military sales and Army purchases satisfy that 360 number, what is the split there?

Mr. **Truxell**. Anybody's guess.

Mr. **Dicks**. You said 200 on the foreign military sales, so you are talking about 160 or thereabouts to make the 360?

Mr. **Truxell**. That is as good an estimate as any.

Mr. **Dicks**. As part of the foreign military sales package being prepared for the M1A2 sales to the U.K., the U.K. has requested the recipe for depleted uranium armor. The U.S. was reluctant to provide such information since it might have harmful economic consequences if U.K. manufactures the armor itself. Recent efforts, however, indicate that the Army has agreed to sell the U.K. the D.U. formula.

Is this true, and if so, could you explain the economic consequences of supplying the U.K. with the D.U. formula?

Mr. **England**. I am going to speak just because of the security clearances. Frankly, we are not knowledgeable of that particular subject.

That is something that you would have to ask the Army because of the nature of those recipes.

Mr. **Dicks**. How are you addressing the GAO concern with its integration of the M1A2 improvement into an electronics package. GAO has had questions about the effectiveness of this integrated package.

Mr. **England**. I would say that, frankly, there is no concern either among ourselves or the Army, and I think the people that have seen the system fully appreciate the value of the integrated system. It is certainly more economical and more effective than a combination of a lot of discrete systems that you would put into the vehicle.

The GAO did their review very early in the program, before there was any hardware, software or anything available and I think based their analysis largely on projects.

We have asked them to come back and look at the program once more and I believe they will come out with a different recommendation if they could see the system today.

Mr. **Dicks**. General Pihl said this in a March 22, 1990 quote in Defense Daily, "The M1A2 full-scale development program is not on track. Perhaps we may even have to make a tough decision on these 62 tanks." A review council that he chairs was scheduled to meet yesterday to review the program, its schedule and cost. What do you have to say about that?

Mr. **England**. We had a—as I guess as a consequence of that, we did have a senior review by DOD people who came into the plant to review the program and reviewed all aspects of the program. It is my understanding, although—that that report was very favorable. We were given milestones to meet in terms of the performance of the system and those milestones were called out to be ready for demonstration some time in July and, frankly, we have already met those requirements and we will demonstrate them next month.

So my response is that we are meeting or ahead of the milestones that have been laid out in terms of the performance of the M1A2 system during development.

Mr. **Truxell**. That task force is headed by a Mr. Hollis, who spent an entire day going through our program and went away after he had looked at the financial forecasts confident that we were on track for schedule and cost.

Mr. **England**. And performance.

Mr. **Dicks**. Okay.

Any other questions?

Mr. **Miller**. Yes, Mr. Chairman I have a couple of things.

There was some research done by the Army last year on a system, a hydraulic system called fluidtronics. Are any of you gentlemen aware of the system and where it might stand at the present time?

Mr. **England**. No, sir, I am not.

Mr. **Miller**. It was a system that would be comparable to electronics only it is done with a hydraulic fluid, and the core has channels in it.

As it turned, the fluid would come out to two different points on the outside of the valve and work very smoothly and the people doing the testing at the time had a tank in and had installed on that tank the hydraulic system and I just wondered where it stood.

Mr. **England**. I am sorry. I am familiar in general with the technology, which is using fluids like electronics for gates, but I am not familiar with the Army program that they have, I guess, done on tanks.

Mr. **Truxell**. That might be something that General Guthrie brought to our attention and I believe your people have it under study.

Mr. **England**. I will be happy to look into it and get back to you.

Mr. **Miller**. What part of the facility and equipment used for making the M1 tank today are likely to be needed for making the Block III tank?

Mr. **Truxell**. I would expect all of the facilities. The Block III tank is fundamentally a steel compartmentalized hull. While the turret is not as significant as today's turret, it still requires fabrication on facilities that we have. The suspension system may change, and that will change the type of work we do at Scranton, but not the amount of work. But, essentially, I would say that the existing facility is perfectly adequate.

The only problem will be whether it will run.

Mr. **Miller**. Assume there is someone to run it.

Mr. **Truxell**. Then it is a relatively reasonable evolution.

Mr. **Miller**. How likely is it that the Detroit or Lima plant would be used for the Block III?

Mr. **Truxell**. Highly likely. if the Army is preserving the Detroit tank plant, they are doing quite a bit of renovation in anticipation of building the Block III tank that is envisioned as part of the ASM program in Detroit, as well as Lima.

Mr. **Miller**. Thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. **Dicks**. We hear rumblings that there may be problems with the Block III program, that the Army has denied funding for it. Can you tell us your view of the status of the Block III program?

Mr. **England**. We understand that earlier this week there was a conventional systems committee meeting in DOD and that there will be a DAB meeting later this month, and as far as I know, there won't be any decisions on the program until after the DAB meets so in the meantime, we have turned in proposals, but until decisions are made at the DAB, I guess we don't know, sir.

Mr. **Truxell**. We are obviously competing on that program and submitted a BAFD. I believe the Army is going out with a second BAFD, so they apparently have funding problems.

Mr. **Dicks**. We appreciate very much your being here. I have tried to ask you some hard questions to give you a chance to build a good record, because down the road we will be faced with a difficult decision, and it is good to have your answers here.

We notice the presence of Mr. Oxley from Ohio, a very valued colleague. We want you to know we are going to give you a very fair hearing on this question.

Thank you very much, gentlemen. The Committee is adjourned.

WEDNESDAY, JULY 25, 1990.

UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

WITNESS

JAY P. SANFORD, M.D., PRESIDENT, UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES, AND DEAN, F. EDWARD HEBERT SCHOOL OF MEDICINE, USUHS

INTRODUCTION

Mr. **MURTHA**. The committee will come to order.

This afternoon we welcome Dr. Jay P. Sanford, President of the Uniformed Services University of the Health Sciences, located in Bethesda, Maryland. Dr. Sanford also serves as the Dean of the University's School of Medicine.

Recent press reports and a DOD Inspector General audit report dated April 11, 1990, have alleged numerous incidents of mismanagement and other serious violations at the University. Today's hearing has been called to review the University's operations, its funding profile, and some of these other charges which have recently surfaced.

As a matter of fact, these problems were brought to my attention by Mr. Sabo in a letter of concern to the Committee about the markup. Mr. Sabo believes that problems that developed with one program that he was interested in are symptomatic of larger problems at USUHS.

As you know, there has been a controversy over the last several years about the cost-effectiveness of maintaining a military medical school when there are 126 private medical schools in the U.S., and Mr. Sabo recommends in the final analysis that we do not continue the existence of the University. I sent a letter expressing my concern to the Secretary of Defense, since the coordination of this University does not go through the Assistant Secretary of Defense for Health Affairs.

We found in our research that the University costs, and I assume these are figures that you provided to us, about $527,000 per student to train a medical student, and it costs about $125,000 to train a University scholarship student. Last year we had 6,000 scholarships available to the armed forces. They only used 4,100. One thousand MDs will graduate in 1991 at a cost of $60 million, and the University will graduate 162 students for a cost of $77 million.

So we have a concern. We may not be comparing properly, and we know that there is a longer period of time that we anticipate or expect USUHS graduates to stay. We have seen some figures where they do stay longer, but we are not sure that is a valid comparison because it has been such a short period of time.

But when I see a figure of 4-1/2 times what it costs to go to another medical school, it raises my concern, and I thought since you are not under the jurisdiction of the Assistant Secretary of Defense for Health Affairs, that it would be important in light of Mr. Sabo's concern that we would ask you to appear before the Committee and explain exactly why these costs are so high and justify the existence of the University.

Mr. McDade.

JACKSON FOUNDATION

Mr. McDade. Thank you very much, Mr. Chairman.

Doctor, welcome, and I echo what the Chairman has said and reiterate the concerns that Mr. Sabo has expressed.

We are going to go into a whole series of questions that we want to talk to you about. One of them is the relationship that the University has with the Jackson Foundation. We understand the Jackson Foundation was established by the Congress in 1983 as a nonprofit, nongovernment organization whose purpose is to carry out medical research and education projects.

What is your relationship between the University and the Jackson Foundation?

Dr. Sanford. Prior to responding, Mr. Chairman, might I make a few opening comments?

Mr. Murtha. You may, and your biography and complete statement will be made part of the record.

Summary Statement of Dr. Sanford

Dr. Sanford. I am Dr. Jay Sanford, president of the Uniformed Services University, where I have been Dean since 1974. I do appreciate this opportunity to appear before you to review both our programs and costs.

The University, as you know, was created by overwhelming vote of the Congress in 1972 as part of the Uniformed Services Health Professional Revitalization Act in response to the end of the doctor draft. The Act actually established—the same Act established the Armed Forces Health Professions Scholarship Program, which you mentioned. The two programs were designed to be complementary.

Under the leadership of David Packard, the first chairman of our board of regents, the School of Medicine was established. The board placed major emphasis on economy, at the same time without compromising the educational opportunities. The facilities to provide the basic science training were constructed on schedule and actually were completed at $2 million under the appropriation.

Our clinical teaching is carried out in service hospitals, particularly National Naval Medical Center, Walter Reed Army Medical Center, Malcolm Grow Air Force Medical Center, and the Wilford Hall Air Force Center in San Antonio. These collaborative efforts between the University and the medical centers are of great importance not only for student teaching but are important for the graduate education training that takes place within these programs and of which both our graduates and the health profession scholarship students are beneficiaries.

MEDICAL TRAINING

They also provide a major incentive for retention of experienced physicians in the medical centers. Training that we provide at the University is unique. There are subjects of major unique military importance, such as tropical medicine and sanitation, laser injury, and high-velocity missile injuries. This is an Army manual for troops of 1914. This is what one needed in 1914. Today's military physician must know everything its civilian counterpart knows and more.

We have two curricula at the school, a standard as well as a military curriculum. We have the longest curriculum, 182 weeks, of any school, and we provide approximately 20 percent more contact hours.

The University does not only teach medical students, we provide graduate medical education and continuing medical education opportunities, especially overseas. We will have reached over 3,000 physicians, military physicians this year. We also provide tri-service training in operational medicine and combat casualty care for reservists and do the sustainment training for the active duty special operations medics. In this category, we will have reached over 5,600 this year.

OPERATING COSTS

Because of the concerns over costs, I would like to review our current and anticipated costs. Let me go back. In December 1975, before the Subcommittee of Military Construction of the Senate Appropriations Committee, before the first student was matriculated we estimated our annual 1981 operating costs to be $28 million with an enrollment of 625. In 1981 our costs actually were $22 million, 22 percent under our six year earlier estimate. Our fiscal year 1990 operating costs are only $36 million, a cost increase of less than seven percent per annum, less than the medical consumer price index, and the enrollment is 666 medical students.

As you have pointed out, the cost of the University, the entire University operation is frequently compared to the cost of acquiring physicians through the scholarship program. The analyses, all of them show that the University cost is more, we agree, more than the scholarship program.

However, the differences depend on the method of analysis. In 1976, the General Accounting Office used the unit of cost as cost per staff year of expected services. In that analysis, the cost was $26,000 for the USUHS graduate, $21,000 for the scholarship graduate, a difference of 22 percent.

Your staff has seen the 1988 report, the "Cost of Physician Accessions" from the Department of Defense. There they come down to what they define as a break-even cost, which is the cost of filling a position indefinitely. They have calculated this on the basis of a family practice physician, and in this instance the cost for a scholarship graduate is $85,000, the cost for a University graduate is $130,000. So the difference is 53 percent, not two to five times more. The cost we would argue is perhaps 22 to 53 percent more. It is higher, but it is not an order of magnitude.

BENEFITS

In addition to this, there are a number of intangible benefits that one acquires from University graduates. Within the earlier two days of this week, I have had the opportunity to meet with three of our graduates who were in Panama during the early phases of Operation Just Cause. Talking to them, learning of their experiences, their commitment as well as other intangibles which are not quantifiable on a spreadsheet, would lead me to argue that the University does provide a unique opportunity.

SELECTION OF STUDENTS

First of all, the selection of students—we select students who are specifically motivated for careers in the military. We select them from an applicant pool of approximately 16 applicants per each seat that we have. The scholarship program is selecting from approximately two applicants for each position. The student while at the University participates in a unique curriculum which enhances their acculturation into military services. They become military physicians in contrast to doctors in the military. Retention is also important—it is not the only measure, but it is an important feature. Our graduates will have longer retention because they have longer periods of obligation. Many of them have close to 20 years obligation before they start. This will assure a corps of dedicated mid to senior rank medical officers who are not driven out to repay medical school debts. Let me remind you that the scholarship student most regularly comes on active duty with debts, so that they have to find how they can pay these debts. These mid to senior rank officers are seasoned clinicians, teachers and leaders. You receive care from many of these individuals who are here only through retention.

SUMMARY

The issue of whether or not the University should be established was thoroughly debated in 1977. The decision was clearly made to proceed. If USUHS is closed there is no return. It will never be reopened. It would be impossible to recruit a satisfactory faculty or to attract the quality applicant you would want.

Mr. Chairman, thank you for letting me make these opening comments. I would be happy to address at this point not only Congressman McDade's questions but all of the other questions that the other Members would have.

[The statement of Dr. Sanford follows:]

STATEMENT BY

JAY P. SANFORD, M.D.
PRESIDENT
UNIFORMED SERVICES UNIVERSITY OF THE HEALTH SCIENCES

BEFORE

COMMITTEE ON APPROPRIATIONS
DEFENSE SUBCOMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

ON

JULY 25, 1990

NOT FOR PUBLICATION UNTIL RELEASED BY
COMMITTEE ON APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman, Members of the House Appropriations Defense Subcommittee, I am Dr. Jay P. Sanford, President of the Uniformed Services University of the Health Sciences (USUHS, the University). I am greatly appreciative for this opportunity to appear before this Committee to discuss the progress of the University in meeting the health needs of our Nation and to reaffirm the need for the school as well as to answer questions you may have concerning the DoD Inspection Inspector General (IG) Report released 14 April 1990 detailing the results of a regular inspection of University operations from 12 June -31 July 1989.

If I may have the Committee's indulgence, I would briefly like to recount the philosophy behind the establishment of this institution and to bring you up to date on the accomplishments of the University.

As you will recall, in 1972 the Congress by overwhelming vote passed the Uniformed Services Health Professional Revitalization Act (HR-2). The legislation authorized the establishment of a Uniformed Services University of the Health Sciences within 25 miles of the District of Columbia with highest priority being given to the development of a medical school and mandated that a minimum class of 100 medical students be graduated from the institution by 1982. Also, the Act provided for an Armed Forces Health Professions Scholarship Program.

This particular piece of legislation was designed to help alleviate, on two broad fronts, the physician procurement and retention problem:

- to attack the problem on a short-term basis by establishing a comprehensive scholarship program for training professionals in the health fields for careers in the Armed Forces.
- to cope with the long-term problems of procurement and retention of health professionals by establishing a health science university which would include the development of a medical school for the production of career-oriented physicians as well as contributing to the enhancement of the prestige and dignity of a professional medical career in the military.

The Board of Regents, because of its desire to achieve maximum economy while developing an outstanding medical educational program, has insisted on optimum utilization of existing resources, the construction of a functional, efficient physical complex composed of multi-purpose laboratories, classrooms, and research areas, and the recruitment of faculty members who are effective teachers as well as research investigators. Multidisciplinary clinical science teaching is carried out by the University in collaboration with the National Naval Medical Center, Walter Reed Army Medical Center, Malcolm Grow Air Force Medical Center, and

Wilford Hall Air Force Medical Center. Other Service Medical Centers which provide clinical training in single specialty areas such as Family Practice include: Dewitt Army Hospital, Ft. Belvoir; Navy Medical Center Charleston; Naval Medical Center Jacksonville; Eisenhower Army Medical Center; Martin Army Hospital Ft Benning; United States Air Force Hospital Eglin Air Force Base. Additional surgical training at Portsmouth Naval Hospital and Brooke Army Medical Center, pediatric training at Keesler Air Force Medical Center, as well as at over 200 health care facilities around the world, both military and civilian provide elective opportunities.

These collaborative clinical teaching efforts are important not only for medical student teaching, but greatly enhance graduate medical education (residency) programs and provide a major incentive for the retention of experienced physicians in the medical centers who provide care within the direct care system. The Committee fully appreciates the cost savings realized by the provision of care within the direct care system.

Collaborative research efforts with such organizations as the Armed Forces Institute of Pathology, the Armed Forces Radiobiology Research Institute, Walter Reed Army Institute of Research, the Naval Medical Research Institute, the National Institutes of Health, the National Library of Medicine, and other health care oriented organizations are in progress.

Because of the concern of Congress, and particularly this Committee, over the costs of Federal programs, I would like to detail for you what we have accomplished to date. The first graduating class was in 1980 with 29 uniformed officers receiving the M.D. degree. Since that milestone the University has added 1354 fully-qualified physicians, 98% of whom are still serving on active duty today. Last year this Congress increased the obligation period for our physician graduates from 7 years to 10 years. While we think this will hurt recruitment of future applicants, University graduates will be serving our Nation well into the next century. For an example, a West Point graduate who attends the University, and who is selected for surgical specialty training, will after graduation from USUHS serve 5 to 7 years as a surgical resident in one of our medical centers caring for patients, after which time he will begin to pay back his 6 years of military academy obligation, after which he will then serve his 10-year USUHS obligation. He will have served at least 21 years before being eligible to leave. You may ask what type of student is willing to take that type of obligation, and I answer the type our Nation needs--dedicated, professional, and patriotic--the type our University has provided for the last 10 years. At present, approximately 10% of the Uniformed Services Medical Corps is made up of USUHS graduates.

The book I am holding in the palm of my hand is the Army Manual for Medical Troops in 1914 In this small book an individual had all he needed to serve our Nation on the battlefield. Today, we have no established battlefields but military medicine has grown from this small manual to require the physician to know everything from computers, to aircraft operations. Our students jump with our Special Forces in the hot spots such as Panama. They dive with our submarine crews and fly with the Air Force. They respond to mass casualty situations such as the Gander Newfoundland Crash, the earthquake in San Francisco, and the jet crash in Iowa last year.

We are unique in our training. Because of the need to graduate individuals who are not only physicians competent to provide quality care in the United States but throughout the world, above and below the surface, and because they must be knowledgeable and effective uniformed officers, the USUHS curriculum has been expanded from that provided in the other 127 U.S. medical schools. Subjects of major or unique military importance are included. Such topics include an extensive course in tropical medicine and sanitation. Subjects such as the prevention and treatment of heat and cold injury, hypo and hyperbaric medicine, radiation, laser injury, chemical agents, the surgical management of high velocity missile injuries, recognition and management of combat stress, medical planning and organization, and aeromedical evacuation to mention some are integrated into the curriculum.

At the time of the last accreditation review (February 1986), the Liaison Committee on Medical Education granted USUHS full accreditation for seven years. In their summary, they specifically noted: The M.D. educational program is the longest in duration known to the surveyors - 182 weeks. Because the students are all on active duty, each is entitled to only thirty days of leave per year and all other time is planned and scheduled. Actually two curricula are offered: (1) the usual M.D. program requirements; and (2) a substantial military medical curriculum designed to educate medical officers.

You can be as proud of our graduates as we are. Already our relatively young alumni have earned the respect of their colleagues by capturing some of the most coveted prizes in medicine today.

In addition to providing physicians to all four uniformed services, Congress vested the Board of Regents with the authority to:

(a) "establish postdoctoral, postgraduate, and technological institutes"; and

(b) "establish programs in continuing medical education for military members of the health professions to the end that high standards of health care may be maintained within the military medical services."

The University does not only teach new physicians. Last year we provided training to over 5,600 health professionals, predominantly reserve physicians in combat and mass casualty care as well as unique medical skills necessary for a strong defense. We also trained over 3,000 physicians, nurses, dentists, and health care specialists in Continuing Medical Education Programs around the world, thereby helping our troops meet licensure requirements in a more cost-effective way than making them travel. The University is fully accredited to do this by the Accreditation Council on Continuing Medical Education and the American Nurses Association.

The University has a fully accredited graduate program in the basic health sciences awarding Doctoral (Ph.D.) and Masters (M.S.) degrees in the basic sciences as well as very specialized training in its Master of Public Health Program. Recently this later program was recognized by the Institute of Medicine, National Academy of Sciences, as a "Center of Excellence." No other school in the country has a better program than our Nation's health university. In addition to providing opportunities to study tropical medicine, this program builds bridges with the medical community around the world.

The military has for two centuries been involved in very constructive and beneficial medical research. For example, the military has long been the leader in the areas of trauma, burns, infectious disease, tropical medicine, preventive medicine, environmental stress, blood preservation, vascular surgery, and alcohol and drug abuse. More often than not, proper recognition and credit has not been received either by individuals or the organization for the work done and contribution made in these and many other areas. The University's research program is an integral part of the existing effort because research is the backbone of any medical institution and vital to the retention of qualified faculty. Research is consistent with the University's legislation in that the University must be competitive with area medical schools. In the University's relatively short life, our researchers have successfully competed with the Nation's top scientists. For example, the National average for approving and funding proposals submitted to National Institutes of Health (NIH) is about 30%. USUHS investigators have an approved funding rate of 52%. USUHS has 128 funded extramural projects which placed us 76th of the 127 medical schools in federal research grants and contract funding.

In the battle against AIDS the University, in cooperation with the Henry M. Jackson Foundation, is at the forefront of research. When a breakthrough comes it will no doubt be due in large part to military medicine efforts.

When an earthquake struck Soviet Armenia, the University, in cooperation with NASA, established Space Bridge, a now proven system for providing medical advice to the most remote parts of the world. Our researchers have found ways to digitize X-Rays and send them via satellite so that ships at sea and small military outposts can have the benefit of expert medical consultation. Our Laser Biophysics Center is working to use Star Wars technology in the health field. Our Center for Interactive Video in Medicine is now recognized as a world leader in that new and promising field.

Recognizing the need to keep medicine and the law current, the University this past May established the first Legal Medicine Section of an American medical school to deal with the complex medical and ethical questions our students must now deal with because of the advancement of medicine. The University's first year course "Human Context in Health Care" is recognized as a National prototype. Our medical faculty in their zeal to be at the cutting edge of medical knowledge have propelled the University in only a brief time to a position of being within the top five medical universities in the Nation to have biotechnology patents issued. After competitive selection, University clinical investigators received the contract from the American Board of Internal Medicine to implement nationally the program used at USUHS in evaluation of clinical competence. I could go on with the accomplishments but I would like to turn to your specific concerns.

Because of the concerns of the Nation, the Congress, and particularly this Committee, over the costs of Federal programs, I would like to review with you the anticipated costs of the Uniformed Services University.

The cost of operating the USUHS is frequently compared to the cost of acquiring physicians through the Armed Forces Health Professions Scholarship Program (HPSP) by comparing the cost per graduate. Such analyses show that the USUHS cost per graduate, cost per accession, or even cost per expected staff year of service is somewhat greater than the HPSP. The results of such an analysis should not be surprising to anyone who is knowledgeable of the history of USUHS, the reason for its establishment, and its major contributions to medicine militarily, nationally, and internationally. Besides, USUHS and the HPSP were intended to be complementary, not competitive.

Attributing the total cost of USUHS to 155 physician graduates per year is fallacious. While this is the University's major mission, it is, as has been shown above, not the only mission.

Attributing the $77 million annual cost of operating the University to 155 graduates is analogous to attributing the $13 plus billion it costs to perform the DoD medical mission to the workload produced by over 500 treatment facilities, including 168 hospitals worldwide, and the CHAMPUS. In fact, only $9.6 billion of the $13 billion is attributable to patient care.

The discussion of cost frequently rests on the assumption that simple quantitative and qualitative methods are available to assess the differences between the cost of USUHS and contracting for the training of physicians with civilian medical institutions. This is not the case. The Association of American Medical Colleges which has collected detailed financial data on a yearly basis for the last quarter century from all accredited U.S. medical colleges cannot make any definitive statements as to the actual cost of educating a medical student. The reason for this is the complex inter-relationships between the medical education, research, and health care programs and the variety of institutional financial arrangements that have arisen to provide for them. However, when total costs are considered, USUHS is a cost effective institution.

The August 25, 1989 issue (Vol. 262, No. 8) of the Journal of the American Medical Association (JAMA) provides data from 127 medical schools in the United States.

86-87	Average expenditure per medical school	Average Number of graduates	Cost per graduate
Civilian	$109,874,016	126	$872,016
USUHS	$72,152,000[1]	156	$462,513

(USUHS costs 47% less and graduates 24% more students)

Information provided by the American Association of Medical Colleges shows that for the 1987-1988 school year, USUHS stood 23rd in the size of its student population but only 48th in revenues.

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[1] This figure includes the operations and maintenance figure as well as the cost of all uniformed personnel. Uniformed personnel would be reassigned if not at USUHS.

This is particularly significant in view of the IG's portrayal of an organization fraught with problems of mismanagement.

The gross costs calculated for the operation of the University are at present $77 million of which only $36 million is a direct appropriation to the University. You have previously been provided information to indicate that the breakeven cost for the University (that is the discounted costs of operation and procurement divided by the recursion factor) is $129.8 thousand for USUHS and $85 thousand for HPSP students. While there is a $45 thousand difference in the breakeven point, one needs to keep in mind several factors. As I have mentioned before, the USUHS graduate will be on duty well into the next century. The USUHS is already highly trained and "hits the ground running" after taking the tough positions that are not attractive to the shorter-term HPSP graduate. And finally, the USUHS student has been shown to be highly motivated to a career in service to the Nation with 98% of all graduates still on active duty.

As noted by GAO in its study in 1976, the recent IG report stated the social benefits of the University "... are important concerns which must be considered along with the program's [USUHS] cost effectiveness." Several studies have addressed the performance of USUHS graduates following graduation.

Major George P. Chagalis performed an evaluation of USUHS graduates as compared with Armed Forces Health Professions Scholarship Program graduates for his doctoral dissertation at George Washington University.

Based on the study's findings, the following conclusions are presented:

1. The USUHS graduates exhibit more medical knowledge in the emergency room environment than the HPSP graduates. The emergency room supervisors rated the USUHS graduate higher than the HPSP graduate in exhibiting more medical knowledge.
2. The USUHS graduates receive better medical training to function as "military" physicians than do the HPSP graduates. Significant chi-square values were obtained for: patient interviewing and medical history taking preparation; physical examination preparation; documentation preparation; interpersonal skills with peers; technical skill preparation; management skill preparation; instruction at medical school; clinical rotations; and overall performance as an intern. In each of these areas the medical school preparation for First Year GME was rated higher by the USUHS graduate than the HPSP graduate.

Thus, the USUHS graduates were: dedicated toward making a career in the military; willing to accept less than desirable assignments; responsive to military education; more understanding of the military mission; and more knowledgeable of military medicine.

Subsequently, USUHS has conducted an ongoing analysis of the performance of USUHS graduates as compared with other accession sources during their first year of graduate medical education as assessed by their program directors. Results are summarized as follows:

Postgraduate Year One Performance
of USUHS Graduates (1984-1987)

- Criteria -

Outstanding	Consistently almost one level higher than almost all first year residents
Superior	Clearly better than most first year residents
Average	On par with most first year residents
Needs improvement	Significantly below most first year residents
Unsatisfactory	Unacceptable

- Results (501 graduates) -

Outstanding	18%
Superior	47%
Average	29%
Below Average	5%
Unsatisfactory	0.4% (2)

At this time of the 10th anniversary of the Class of 1980 (the "Charter Class"), I can say that there is virtually nowhere in the world one can travel and not encounter USUHS graduates serving, from the South Pole, Korea, Japan, the Philippines, Central America, Europe and Southwest Asia. If there is a remote assignment with two medical officers, it is likely that one will be a USUHS graduate. If the assignment is a one medical officer assignment, it is almost certain to be filled with a USUHS graduate. The medical officer to support the initial Marine Force in Beirut was a USUHS graduate. Graduates have seen combat duty in Grenada, and most recently Panama. Three of the past four years the Air Force Flight Surgeon of the Year has been a USUHS graduate. One needs only to query line or senior medical officers--USUHS graduates are prepared to meet the challenges of any assignment.

Of interest to me as a physician is the fact that in 1968 there were only three medical malpractice claims filed with the military totaling $4750.00--none were paid. In 1976, the year we took in our first students, there were 172 claims filed totaling $84 million and $1,275,000 was paid out. In 1989, the last year for which I have figures, there were over 216 claims filed with a payout of over $75 million. Just the amount paid for medical mistakes last year more than exceeds the University's budget. To date and to my knowledge not one of these losses is attributed to a USUHS graduate. We do think that says something about the type of professionalism our graduates exercise.

In this era of peace there is still a need for the USUHS graduate. When one considers that the DoD has a medically eligible population of 9,000,000, the cost of providing physicians to care for these individuals into the next century is less when done in the direct care system by a USUHS graduate as opposed to CHAMPUS which has had a $740 million shortfall this year alone.

$77 million ÷ 155 = $496,774

$496,774 ÷ 9,000,000 = $0.06

An annual outlay of 6 cents per eligible beneficiary will guarantee a stable source of physicians to care for these now eligible.

Recent reports note that USUHS graduates accepted the Medical Officer Retention Bonus (MORB) at the lowest rate of any accession source. While this is based upon an extremely small sample, it is accurate, 26 percent for USUHS eligible graduates versus 26.5 percent for doctors overall whose initial obligations were up in 1989. However, of much greater significance is the retention rate for USUHS graduates. This, too, is a small sample but of the 26 USUHS graduates who have completed their initial obligation, 88.5% are still on active duty. This is the highest retention rate of any source of physician accessions. By comparison, HPSP graduates who were deferred for training in civilian facilities had only a 30% retention rate in the first year beyond initial obligation. The fact that a small number of USUHS graduates accepted the MORB is irrelevant. The proper measure of retention is how many actually stay past their initial service obligation. Thus far, 88.5% have stayed.

In the long run you get what you pay for--it is sort of like buying a battery--you can buy a cheap battery with a 12 month warranty that gets the job done most of the time with no real guarantee that it will work at any given time and buying a battery with a 60 month warranty whose initial cost is greater but is reliable, and available for a predictably longer period.

Turning now to the other issues in the IG Report which has seen so much press lately. Let me first say that it is not the type of press I like to see. While we are concerned that this audit may not represent the true picture of the University, I can nevertheless assure you we take it seriously and have taken steps to implement all of the recommendations made by the audit team. I have taken this step because of the trust this Congress has placed in our University to provide the finest physicians available to our Nation. While there was never any mention of a question of the quality of educational program, I and my faculty do not even want the appearance of such.

Congress in 1983 created the Henry M. Jackson Foundation for the Advancement of Military Medicine to assist the University in its educational endeavors. I can report to you it has prospered and served as a model for other such foundations such as those you established last year for the Veterans Administration. It has suffered from growing pains and the IG Report shows that. The Council of Directors of the Foundation and the Board of Regents of the University have taken action to correct the problems of a young foundation that matured too fast. One year after the audit the management of the Foundation has been tightened, greatly strengthened, and is eager to demonstrate the benefits to be gained from an outside audit. We have gone through more audits and more probes this past year than at any time in the school's history and we know our weaknesses and are healing the wounds.

To close -- Mr. Chairman I have been at the University since 1974 and can report to you that we will overcome the newspaper reports with which you are concerned. We are implementing all of the IG recommendations and we are prepared to continue to provide the best health care providers our Nation so desperately needs. Thank you for your time. I will be happy to answer your questions.

Mr. **Murtha**. Mr. McDade.

JACKSON FOUNDATION

Mr. **McDade**. Thank you very much.

Doctor, I was going to ask you about the Jackson Foundation, which as you know was established in 1983, was a nonprofit and nongovernment organization. Its purpose was to carry out medical research and education projects. Would you describe the relationship between the University and the Jackson Foundation? Is one separate from the other, are they distinct entities?

Dr. **Sanford**. Yes, sir. As you pointed out, the foundation was established as a nongovernmental, nonprofit corporation within the state of Maryland, and its purpose was to carry out medical and research projects under cooperative agreements with the University. So the legislation itself stated that it would have cooperative agreements with the University.

It was, however, also to focus as an interchange between military and civilian medical personnel and to encourage participation of a wide spectrum of health professionals in the work of the foundation. It is independent. It has a council of directors, five ex officio members and four appointed members. The council has a separate staff.

At the time of its inception in 1983, the staff was voluntary. Over its early years, through the arrangements which enable the foundation to provide support to the University, and likewise the University to provide support to the foundation, the University did in fact provide support. As the foundation has grown, and it has grown very rapidly, with funds from fiscal year 1988 of $5.3 million to fiscal year 1989 of over $14 million, it now has a deputy executive director full-time.

We are actively recruiting for a full-time executive director. It has its own legal counsel, its own financial people. We have just brought on board permanent people, logistics and contracting, and it is in fact an independent operation, though it works very closely with the University because we are both in support of the same mission, mainly advances in military medicine.

Mr. **McDade**. Our figures would indicate that currently 95 percent of the Jackson Foundation's annual research program goes to the University. Would you agree with that number?

Dr. **Sanford**. That number is virtually correct.

Mr. **McDade**. Tell us why there is such a large amount of Jackson Foundation research dollars flowing specifically to the one university?

Dr. **Sanford**. The Jackson Foundation itself actually has virtually no corpus of funds. The $14 million—of the $14 million which are present in the Jackson Foundation, there are $69,000, or 0.5 percent, which represent unrestricted funds that could be used in support of nondesignated endowments or research programs. The funds that come into the Jackson Foundation are primarily the result of grant applications which are prepared and submitted by faculty at the University. They are processed through the Jackson Foundation and the funds in turn come to the Jackson Foundation.

I might point out that this is an arrangement which is not unusual within the civilian medical community. Within the civilian community many of the state schools, in particular, have established foundations through which Federal funds actually reach the institution and are managed through a foundation.

Mr. McDade. You are saying that virtually every dollar that goes into the Jackson Foundation is prepared on grant applications submitted by the medical school——

Dr. Sanford. No, sir. Many of them are. Some of them are developed by physicians and other investigators who may be at the military hospitals but are not at the medical school but are in military hospitals. So they come from military hospitals.

I should also point out that recently the Congress enacted legislation which allowed the establishment of foundations at each of the VA medical centers. There are approximately 130 potential foundations out there in association with the Veterans' Administration and over 30 that are currently operating in guidelines very similar to those which the foundation—the Jackson Foundation, under which it operates.

Mr. McDade. Is this all government money?

Dr. Sanford. No, sir.

Mr. McDade. How much of it is private money?

Dr. Sanford. Sir, I would have to provide——

Mr. McDade. You can supply that for the record.

Dr. Sanford. I can't provide it now because I would otherwise be guessing.

[The information follows:]

The amount of research funds administered by the Foundation which is not federal money is $1,327,558.

Mr. McDade. What is the mix, how much is Federal and how much private dollars?

Dr. Sanford. About 5 to 8 percent private dollars. The rest would be Federal dollars.

Mr. McDade. So 95 or so percent?

Dr. Sanford. I would say between 90 and 95 percent Federal, yes.

Mr. McDade. So the Jackson Foundation is to supply research money to the University, is that right?

Dr. Sanford. Not exactly, no, sir. Let me clarify.

You notice I hesitated in answering your question. To handle research funds involves an administrative cost. Any time one handles money there is in fact an administrative cost. The University budget does not include funds to be able to provide administrative support for grant funds which are received from outside of the University. By having these go through the foundation, the foundation in fact handles the grants, provides the administrative support, and it can collect the administrative support to be able to administer them, whereas the University cannot.

So as a result, put in another way, if one assumes that the administrative costs of handling research dollars were 33 percent, with a research budget of $100 million, the University would go broke. We would be putting all of our money into the administrative support for outside support, and therefore this provides a mechanism whereby the Department of Defense is not supporting the administrative costs for this type of research.

Mr. McDade. You are saying there is some front-end money provided by the Jackson Foundation and the rest of it is recouped on the grant applications?

Dr. Sanford. Yes, sir.

Mr. McDade. So the administrative costs are shifted from the hospital to the foundation for purposes of getting research dollars?

Dr. Sanford. That is correct.

Mr. McDade. Who are the sources that you apply to?

Dr. Sanford. The two largest—there are multiple sources, but the largest sources are the National Institutes of Health and the U.S. Army Research and Development Command.

Mr. McDade. Is there some reason that you don't see these grants going to other schools since the Jackson Foundation is doing the administrative costs of it?

Dr. Sanford. The other schools have similar foundations that they handle funds through their own foundations in place of the Jackson Foundation. In the private schools, the school administration handles the administrative costs and collects the funds for the administration within the University.

Mr. McDade. Your testimony is that the foundation is using a mechanism for administering the grants, but its purpose is to funnel research dollars into the University?

Dr. Sanford. The purpose is to provide opportunity for investigators to competitively obtain research funds, yes, sir.

Mr. McDade. But there is no intent to distribute the dollars, the intent is to recoup them all at the University?

Dr. Sanford. If at any time that the funds and the foundation is actively involved in fundraising, once thee are funds that are raised, the University or the foundation would distribute funds to—preferentially it would go to military medical centers, not to the University but to the military medical centers. The foundation has announced that even with its limited amount of unrestricted funding, it is establishing fellowships for military residents in their last year of residency to be able to spend intervals of several months at outstanding non-Federal civilian institutions.

EFFECTS OF PROPOSED UNIVERSITY CLOSURE

Mr. McDade. If as a hypothetical, the University were closed, the Jackson Foundation would continue to fund these grants, you say, to the military research centers?

Dr. Sanford. The research grants, since they are investigator-initiated, if an investigator at Georgetown wished to use the Jackson Foundation, an investigator at Georgetown could. It turns out under current legislation the foundation cannot make grants, it can receive grants but it cannot make grants. It can do so under contracts. The endowments that are there, the Salzburger Chair in dermatology, which was established there, actually supports a chair in dermatology. Were the University to close I presume that Chair would be moved. There is also the Leonard D. Heaton Fund for Excellence in Surgery. That fund is privately endowed and the decision would have to be that of the donors as to what they wish to have done with that restricted endowment fund.

Mr. **McDade**. You serve as secretary-treasurer of the foundation?

Dr. **Sanford**. Yes, sir.

Mr. **McDade**. Is that in voluntary capacity or are you compensated?

Dr. **Sanford**. It is voluntary.

Mr. **Dicks**. There are two Jackson Foundations?

Dr. **Sanford**. Correct.

Mr. **Dicks**. One is operated in Seattle, and that is completely——

Dr. **Sanford**. Completely and totally separate.

Mr. **Dicks**. How was this foundation created in the first instance?

Dr. **Sanford**. This foundation was created in 1983 by Senator Jackson. It was actually created as the Foundation for the Advancement of Military Medicine. Senator Jackson, as you know, was very interested in military medicine. He was interested in providing a mechanism whereby one could provide endowments and other mechanisms to advance military medicine not only in terms of care, but in the advancement of medical knowledge through research, so that was instrumental in the legislation which established the foundation. It was finally passed 27 May, 1983 and unfortunately he passed away in the fall, following which time the Congress redesignated the—what was then the Foundation for the Advancement of Military Medicine as the Henry M. Jackson Foundation for the Advancement of Military Medicine.

GRANT APPLICATION PROCEDURES

Mr. **Dicks**. The foundation is associated with the Uniformed Services University; is that correct?

Dr. **Sanford**. That is correct.

Mr. **Dicks**. Say I am a doctor at the Uniformed Services University and I want to apply for a grant, a competitive grant through NIH, would I apply through the foundation? Would the foundation apply for me? How does that work?

Dr. **Sanford**. You would prepare a standard NIH grant application.

Mr. **Dicks**. All right.

Dr. **Sanford**. Three quarters of the way down that application there is a statement that says what is the sponsoring institution. The sponsoring institution is the Henry M. Jackson Foundation.

Mr. **Dicks**. Because the Uniformed Health Services Hospital cannot be the sponsoring——

Dr. **Sanford**. We can sponsor but we cannot receive indirect costs to support the expenses——

Mr. **Dicks**. Why can't you receive indirect costs?

Dr. **Sanford**. The policy of the Public Health Service is that Federal agencies cannot receive indirect costs from the Public Health Service. It is a Public Health Service policy.

Mr. **Dicks**. Okay. So what the Jackson Foundation can receive is indirect costs?

Dr. **Sanford**. Yes, sir.

Mr. DICKS. I make out the application and I say that the sponsoring organization is the Jackson Foundation. What happens then?

Dr. SANFORD. The application is sent to the National Institutes of Health and goes through their review process.

Mr. DICKS. Say I am successful.

Dr. SANFORD. You are successful, the money comes to the Jackson Foundation.

Mr. DICKS. All of the money?

Dr. SANFORD. Yes.

Mr. DICKS. And part of it is the indirect costs——

Dr. SANFORD. There is indirect costs.

Mr. DICKS. They could receive but the Uniformed——

Dr. SANFORD. Services could not.

Mr. DICKS. How much is that, 33 percent of the grant?

Dr. SANFORD. Actually the current approved rate is 42 percent, which is one of the lowest in the country. If it was going through Harvard it would be at the 77 percent level. The indirect cost rates there would exceed——

Mr. DICKS. When you say indirect costs, what are indirect costs?

Dr. SANFORD. It turns out it is the cost of processing purchases orders, the cost of receiving supplies, the cost of accounting for the supplies, the cost of billing, the cost of—it may be the cost of providing occupational health services for the individuals.

Mr. DICKS. Let me ask you this. Say the grant was $100,000. Are you saying that $42,000 of it would go to the Jackson Foundation in indirect costs and $58,000 would go back to the individual to execute or is it $100,000 of which $42,000 covers indirect costs of the applicant, and $58,000 is for——

Dr. SANFORD. No, sir. What would happen is that the grant would go to the National Institutes of Health. If the applicant applied for $100,000 to do the research, the applicant would get $100,000. The National Institutes of Health would provide an additional $42,000 to cover the costs that are negotiated by DHHS according to different institutions, so that there is a different rate virtually for every institution in the country.

Mr. DICKS. Then what does the Jackson Foundation do to——

Dr. SANFORD. The Jackson Foundation would order the supplies that this individual needs. This individual out of that $100,000 might hire two technicians. The technicians would be Jackson Foundation employees. However, they would physically work at the University with the applicant. Their fringe benefits, all of the costs associated with their personnel management would be carried by the Jackson Foundation.

Mr. DICKS. Okay. So that is the arrangement?

Dr. SANFORD. Yes, sir.

UNIVERSITY OPERATING COSTS

Mr. DICKS. Public Law 92-426 established the Uniformed Services University of Health Sciences to ease the critical shortage of military physicians. It was intended as a complement to the Armed Forces' Health Profession Scholarship Program. A GAO report commissioned in 1976 stated that the scholarship program was a much more economical means for our Nation than the University to produce military doctors. Despite this report, the University was built for $80 million and in 1980 was accredited and graduated it's first class of 29 students. For fiscal year 1991, the University has requested almost $43 million for operating costs and almost $1 million for procurement costs. Presently, the University produces approximately 160 military medical doctors a school year.

What percentage of your budget's operating cost is for salaries?

Dr. SANFORD. For fiscal year 1991 we project 64 percent.

Mr. DICKS. Sixty-four percent?

Dr. SANFORD. Sixty-four percent of the operating budget will be for salaries and benefits.

Mr. DICKS. What other major types of operating costs do you have?

Dr. SANFORD. It divides really into eight percent numbers. Supplies represent approximately eight percent. That is $3.6 million. Utilities, another eight percent at $3.5 million. Other services, which include security, cleaning, housekeeping, refuse disposal, and laundry, represent another eight percent.

Travel represents six percent. Equipment, four percent. And there is a minimal "other" category of two percent.

STAFF SALARIES

Mr. DICKS. There was a recent Washington Post article on July 17. Are you aware of that article?

Dr. SANFORD. Yes, sir, I am.

Mr. DICKS. In that article it said that your salary package as president is approximately $175,000 per year. Is that accurate?

Dr. SANFORD. No, sir. I should say no and yes.

Mr. DICKS. Politicians try to do that too, Doctor.

Dr. SANFORD. That particular statement is—no, it is not correct. My total compensation in fiscal year 1989 as well as in fiscal year 1990 has been the same, $122,000 a year.

Mr. DICKS. There was a suggestion made in this press article—that because you got whatever you get, that the NIH was unable to fill its director's position. Do you think there is any accuracy to that——

Dr. SANFORD. That was part of my yes response. The salary at NIH is a factor. That is only one aspect of the reason that they have been unable to recruit a director at NIH.

Mr. DICKS. What is the salary range of your professors?

Dr. SANFORD. Public Law 92-426 which established the University clearly states that civilian members of the faculty and staff shall be employed under schedules so as to place them on a comparable basis with employees of—similar employees stated in the medical schools within the vicinity of the District of Columbia. We use for comparison Georgetown, George Washington, the University of Maryland, and Johns Hopkins.

Our basic science chairman—by professors I am using chairman—our mean salary approved is $104,000. The actual is $109,000. That is mean and it has been stable since the approved rates were for fiscal year 1989. Our high-income clinical specialty chairmen, anesthesiology, surgery, radiology, the approved mean is $130,000. The actual, $104,000.

Mr. **Dicks**. Are these salaries adequate to get first-class people? Even at these salaries which may sound high to some, are you having difficulty getting quality people?

Dr. **Sanford**. We have been very fortunate in having very little turnover. In our basic science chairpersons our mean salaries when we compare them to George Washington, Georgetown, the four comparison schools, our basic science chairmen are at 91 percent. Our high-income specialties, surgeons and so forth, get 41 percent as much as the chairmen do at surrounding medical schools.

Mr. **Dicks**. 41 percent?

Dr. **Sanford**. 41 percent, yes, sir.

Mr. **Dicks**. So in——

Dr. **Sanford**. Their counterparts are $250,000 plus, yes, sir. And the primary care specialties such as cardiology or internal medicine, pediatrics, those people are at 66 percent of their counterparts.

STAFF/STUDENT RATIOS

Mr. **Dicks**. What is the ratio of professors to medical students and the ratio of administrative support staff to medical students?

Dr. **Sanford**. We have actually one faculty member for 2½ medical students. We have one support person for 1½ medical students.

Mr. **Dicks**. Do these ratios seem high or low to you and do they compare to other local area medical schools such as George Washington or Georgetown?

Dr. **Sanford**. We don't have the local comparative data. We are exactly at the national average, which is for faculty to students one faculty member for 2.5 is the national average, and that is where we are. There are not figures readily available in terms of administrative staff support percentage.

Mr. Murtha. Would the gentleman yield? You have 1,607 staff members?

Dr. **Sanford**. No, sir. The total staff number, and I will have to very quickly——

Mr. **Dicks**. How many students do you have?

Dr. **Sanford**. We have 670 medical students.

Mr. Murtha. 650 according to the IG report, and you have 1,607 staff members. Is that inaccurate?

Dr. **Sanford**. Yes, sir. The figure in terms of medical students is inaccurate. The medical students number is 670. The staff number—allow me to—the staff number is approximately 800, and I will provide the accurate number for the record if I may.

[The information follows:]

The total number of staff at USUHS (military and civilian) including faculty, administrative personnel, research associates, and laboratory technicians is 986.

Mr. **Murtha**. That adds up to more than—that is not two students to one staff person.

Dr. **Sanford**. Excuse me. We are talking about the issue of—I am confused. I am separating staff from faculty.

Mr. **Murtha**. So it is 1,600 staff people?

Dr. **Sanford**. No, sir. There are not 1,600 staff people either.

Mr. **Murtha**. Staff and what is the faculty there?

Dr. **Sanford**. The full-time faculty at the University, both military and civilian, is 271.

Mr. **Murtha**. Mr. Dicks.

Dr. **Sanford**. There are additional——

Mr. **Dicks**. Military and civilian?

Dr. **Sanford**. Yes, sir.

Mr. **Dicks**. That is faculty?

Dr. **Sanford**. Yes.

Mr. **Dicks**. What is the guess you would have on administrative?

Dr. **Sanford**. When I am talking administrative staff total I am talking 800, a little over 800.

Mr. **Sabo**. How many at the Jackson Foundation?

Dr. **Sanford**. The Jackson Foundation currently has 424 employees total, 75 administrative personnel and 349 research personnel.

Mr. **Dicks**. How many?

Dr. **Sanford**. 424.

EQUIPMENT PROCUREMENT PROBLEMS

Mr. **Dicks**. Every year the Congress appropriates almost $1 million for equipment purchased for the University. One of the findings in the DOD IG report was that the University's accounting, storage, and inventory of property was inadequate. In December, 1988, over $1.2 million in University property was reported missing. What is the problem there?

Dr. **Sanford**. Sir, I recognize that there is some. However, the IG report subsequently goes on to note that in March of 1989 this was further surveyed and that most of the missing property was located and the amount missing was $471,000, not the $1.2 million. The $471,000 is against a total property value of $38.5 million. $471,000, a loss over 11 years, represents—it is more than one would like——

Mr. **Dicks**. What kind of things are we talking about here?

Dr. **Sanford**. We have lost several television monitors. We have lost some hand calculators. Some of the——

Mr. **Dicks**. This is probably just——

Dr. **Sanford**. Some of this is pilferage. Some of the reason that they were lost initially was that they were carrying the property book in one room and when one looked far enough you found them in another room. We have subsequently instituted a bar code system which enables us to more readily find those materials which faculty have moved from one office to another.

Mr. **Dicks**. Who is responsible for this? Do you have a division director or how do you keep responsibility for equipment?

Dr. **Sanford**. Within each department or activity, or if the department or activity are very large it may be a section, there is a person responsible for the property book who must sign for the property and must account for the property, and they are in fact responsible for it. If in fact theft has occurred and it is not due to negligence on their part, we may survey and accept that as a loss.

Mr. **Murtha**. Did you fire anybody onve these losses?

Dr. **Sanford**. Yes, sir, we have.

Mr. **Dicks**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Miller.

USUHS ACCREDITATION

Mr. **Miller**. Thank you, Mr. Chairman.

Doctor, you speak of accreditation in your statement. Can you tell us a little more how the school is accredited?

Dr. **Sanford**. Yes, sir. Accreditation of all medical schools in the country, which there are 126, is done by the Liaison Committee on Medical Education, a voluntary organization which is made up of representatives from the American Medical Association and from the Association of American Medical Colleges. They require that an institution prepare documents and then whenever one is up for reaccreditation will send a survey team, usually five to eight individuals who will spend a week going through all of the activities of the institution.

Currently, accreditation intervals may be from—you may be unsatisfactory and not accredited, on probation, or you may be accredited for up to 10 years. Most are in the five to seven year range.

Mr. **Miller**. What range are you in now?

Dr. **Sanford**. We received at the time of our last accreditation seven years of full accreditation, and that was in 1986.

ADMISSIONS REQUIREMENTS

Mr. **Miller**. What are the requirements of a student seeking admission? How are they picked?

Dr. **Sanford**. Students apply to the institution through the same system that they apply to other medical schools, the American Medical College Admission Services. They must be U.S. citizens. They must be between the ages of 18 and 28 years. They must be physically able to meet the physical standards for commissioning. They must be able to meet the standards to pass a security clearance. They then apply. They submit their college transcripts. They take the medical college admissions test.

We have an admissions committee which will then screen these individuals and look for the most highly qualified of the pool of applicants. We will generally invite between five and six hundred individuals to come to the university for an interview. They are interviewed by two military physicians. This information then goes back to an admissions committee, which then is made up almost exclusively of physicians. There are three non-physician members in a 26 or 27 member committee. They then make recommendations as to who we should accept. Those recommendations come to me as dean. I have the authority to not concur with their recommendations. However, I have no authority to accept someone who dose not go through that admission process.

Mr. **Miller**. Do you find many of the medical students transfer from other schools or can that be done, transfer to you?

Dr. **Sanford**. No, sir. We have a policy of no transfers, so that we have accepted students, a few who have been at foreign medical schools, offshore medical schools, but we have required them to start over as first-year students. We accept no one at an advanced level primarily because of the curriculum which includes a major portion of military medicine and to transfer these individuals, they would not have had that part of the curriculum.

MANDATORY SERVICE OBLIGATION

Mr. **Miller**. You have said that it is required of the student to stay in practice, work with and in the services for ten years instead of seven?

Dr. **Sanford**. Sir, the initial legislation which was passed in 1972 required that students have seven years of obligated service after they had completed their residency training so that if they had a five-year residency in surgery after completion of that, they would then have seven years of obligated service. Last year, the Congress passed legislation which extended that obligated service from seven to ten years. However, that does not take effect until the individuals matriculate in the summer of 1992, so it is another year before that occurs.

Mr. **Miller**. Do you feel that this will be too much for the student, to have to serve ten years? Will they think it is too long a time and not sign up for your school?

Dr. **Sanford**. Yes, sir. I think that it will have a very negative impact on our ability to attract the quality of candidate we have at the moment.

I should also point out that of our medical students, 26.5 percent of them either have graduated from the service academies or have had four years of ROTC, so they already have a five-year obligation.

Take a young man or a young woman who is 23 years of age. They have four years in medical school. They are going to then be 27. They have five years of residency training. They are now 32. They have ten years of obligated service; they are 42. They have five years from the academy; they are now forty-seven. You are asking a 23-year-old to commit themselves, sign up from the age of 23 to 47. We have students who, in fact, are going to have to have an extension of their 30-year mandatory retirement to be able to complete their obligated service.

Mr. **Miller**. So this is discouraging to them you feel?

Dr. **Sanford**. Yes, sir. We feel it will be and we have been in discussions and hope that—first of all, we think people are going to stay for 20 years. The issue is not whether they are going to stay. The perception is committing themselves at mid-twenties for the next fifteen to twenty years. We have taken the position that we would be very pleased to see that three of those years, the additional three years go back to reserve duty, seven years of active duty, and three years duty in the reserves because we think most are going to stay on active duty.

Mr. **Miller**. There has to be some type of penalty. If they decide that they do not want to stay in for, say, the maximum ten years, is there enforcement for that service obligation?

Dr. **Sanford**. Yes, sir. They are commissioned officers, and they are AWOL and maybe subject to court-martial. We actually have a student who decided that the individual did not wish to serve and actually was just court-martialed.

AVERAGE GRADUATE SALARY

Mr. **Miller**. What would the average salary be for a physician who has moved into the service after graduation from your school?

Dr. **Sanford**. I do not have it at my fingertips.

Mr. **Miller**. If you would furnish that for the record, I would appreciate it.

Dr. **Sanford**. I would be happy to.

Mr. **Miller**. Thank you, Mr. Chairman.

[The information follows:]

The average salary for a physician who has just graduated from USUHS is $30,619. That is based on the pay of an 0-3 with under two years for pay purposes.

Mr. **Murtha**. Mr. Sabo?

MILITARY MEDICAL DOCTOR REQUIREMENTS

Mr. **Sabo**. Thank you, Mr. Chairman. How many doctors start in service each year?

Dr. **Sanford**. The total strength of the three military services at the present time is between 13,000 and 14,000. There are probably approximately between 1,200 and 1,300, but I would have to provide the accurate figures for you.

I do not have those specific numbers.

[The information follows:]

In fiscal year 1989, the Services accessed 1,699 physicians from all sources.

Mr. **Sabo**. Your graduates are about 160——

Dr. **Sanford**. We graduate between 155 and 158. We have an intake of 162. We provide currently ten percent of the military strength and the projection is within the next ten years we will provide between 25 and 28 percent of the active duty strength of the military medical departments.

DR. SANFORD'S RELATIONSHIP TO UNIVERSITY AND FOUNDATION

Mr. **Sabo**. Just so I understand, you have three positions. You are President of the University, you are Dean of the medical school, and then an officer of the foundation.

Is that right?

Dr. **Sanford**. That is correct. Yes, sir.

Mr. **Sabo**. Where are you compensated from?

Dr. **Sanford**. I am compensated solely by the university, sir.

Mr. **Sabo**. Not by the medical school?

Dr. **Sanford**. The university actually at the present time consists of the medical school and the military medicine education Institute, so that it has never been determined whether my compensation is as President or as Dean.

COST OF EDUCATION

Mr. **Sabo**. We haven't talked very much about the cost comparison. We have charts on that and I hope we would get answers for the record on that.

[**Clerk's note.**—Questions submitted by Mr. Sabo and the answers thereto follow:]

Question. I have a fact sheet from the Office of the Secretary of Defense which indicates that the present value of the cost to educate one doctor at USUHS is $527,464, versus an average for HPSP of $166,730. By that measure, a USUHS graduate is 4.5 times more expensive than an HPSP doctor.

Another way to look at it, for $20 million—about one-fourth the total annual cost of USUHS—we could add another 200 HPSP scholarships, providing more doctors every year than graduate from USUHS.

I understand from your statement that you believe USUHS doctors are better military officers than HPSP doctors, and apparently you believe that it is worth it to the government to pay this extra cost. Do you believe this difference is worth four times the cost to the government?

Answer. Yes, the University is worth the cost, but the cost of educating one military doctor at USUHS is not as stated. The methodology of taking the entire USUHS budget (O&M + military salaries) and dividing by the number of students is attractive because of its simplicity, but it is deceptive. Let me give you an example.

The University's Military Medicine Education Institute trained over 5,600 reserve medical personnel this year. The cost was $4 million or $714 ($4 million ÷ 5600) for each reservist trained. But, if one adds that cost to the cost of educating a medical student ($4 million ÷ 160 graduates), it adds $25,000 to the cost of educating each of our graduates even though they do not receive this training. Unfortunately, dividing our budget (including the $4 million) by the number of students is precisely what has been done and significantly overstates the cost per graduate. Many of the costs associated with our students are really costs associated with other missions of the University.

The 1988 DoD study on "The Cost of Physician Accessions" with updated figures (the study from which your figures were taken) shows that the break-even cost for a USUHS graduate is 53% greater than HPSP ($129,800 compared with $85,000) not 4 times as much. Questions were raised as to the validity of the retention factor used to arrive at the break-even cost. It is a reasonable question. In fact, we are of the opinion that the retention factor for the University significantly understates the retention of USUHS graduates.

The study estimated that 60% of USUHS graduates would stay past the initial obligation and only 30% to retirement. We have estimated that our retention would be much higher and of the first 26 graduates eligible to leave the Services, 23 have remained, 2 have left and 1 retired. (Because of prior service obligations, over 25% of USUHS graduates have 11 or 12 years of obligated service after completion of training.) Thus, using a higher retention factor, our break-even cost will compare even more favorably with HPSP. Even so, raw cost no matter how determined is not the whole picture.

The University provides a "Center of Excellence" for military medicine. It is the *only* medical school in the nation which provides training in the areas of surgical management of high velocity missile injuries, tropical medicine and sanitation, recognition and management of combat stress, prevention and treatment of heat and cold injury, chemical warfare agents, laser injury and aeromedical evacuation.

But the graduates of this University are not the only products or the sole measure of its success.

Our continuing medical education program trained over 3,000 health care providers in 1990.

Our Military Training Network in resuscitative Medicine provided training to the Services saving them over $2 million in costs to civilian agencies.

The Military Medicine Education Institute trainined over 5,600 reservists this year.

Furthermore, our faculty are involved in unique research that benefits the military and the nation. Such projects as:

Studies on the effects of radiation and evaluation of medications to treat radiation sickness.

Studies of the toxic effects of biohazardous materials.

Studies of the effects of trauma and emotional stress on performance.

Studies to develop improve methods for the prevention and treatment of cholera.

Studies of growth factors on cellular recovery, repair, and wound healing.

The University is cost effective. Without it, costs to the Government would not decrease. The University's functions would decentralize, and the costs of existing programs will merely shift elsewhere in the federal budget. For example, military faculty, who now provide patient care in military teaching hospitals, will continue to do so but without faculty appointments. The cost of those military salaries, $15.9 million will not go away.

Another factor to consider when looking at the cost of the operation of this University is the role it plays in the retention of experienced medical officers. As of March 1989, the number of specialists with greater than 10 years experience in their specialty averaged 10 percent in the Air Force, 19 percent in the Army, and 25 percent in the Navy. Preliminary data of the DoD retention goals study for physician specialists due in the fall of 1990 show that in many specialties, the experience level is not sufficient to meet the health care needs.

Congress, recognizing the erosion of clinical experience and its importance to military medicine, passed the Medical Officer Retention Bonus (MORB)—designed to retain those with more than 8 years of service. Presently, USUHS graduates compose 10 percent of the medical corps. That figure will go to 26 percent at steady state. At that time, USUHS graduates are projected to make up well over 50 percent of medical officers with over 10 years of service.

Replacing an experienced physician with one who has just completed training does not solve the problem of a force with inadequate experience levels; retention does.

Failure to fund USUHS would have a devastating effect on military medicine. It will be perceived by a great many medical officers as a breach of faith on the part of DoD and the Congress in their commitment to quality medical care for the military. This perception of lack of commitment to professional growth of the military physician will result in an exodus of many of the best and brightest mid to senior career officers. As a result, training programs will be jeopardized and primary care will have to be shifted into the more expensive CHAMPUS system. A loss of 150 physicians from high cost specialties would result in annual costs equal to the annual operating budget of USUHS. I am personally aware of many doctors who have elected to stay because of this University and the environment it has created for military medicine.

These views on the central role which the University has achieved both in military medicine and in the medical academic community are shared by the three Surgeons General, the President of the Association of American Medical Colleges, and the American Medical Association.

If I am passionate in the defense of this University, it is because I believe in its mission and am committed to its purpose.

[Clerk's note.—End of questions submitted by Mr. Sabo.]

AIDS/IVD FUNDING

Mr. Sabo. My interest in this grew out of substantial frustration dealing with what appeared to be a relatively small program we began in 1987 when the Congress added $9 million for an AIDS education program. The money was added to the O&M account, not R&D, and I think that is important to remember. It was designed to be competitive and to be a source of education about dangers of AIDS for rank-and-file servicemen.

Dr. Sanford. Yes, sir.

Mr. Sabo. I think Congress wasn't unclear about what we intended. The 1988 bill, the 1989 bill, the 1990 bill, all included language on this. This money didn't go to the university system, it went to DoD. Somehow over the years, it has ended up at USUHS and in the Jackson Foundation. Last year, we directed the hospital system procure an over-the-shelf product within six months and that hasn't been followed. I understand now you are using this money to produce your own AIDS/IVD program which will be scheduled for distribution to services later this fall. But again, it is a program inconsistent with Congressional intent. Your program is designed for a small segment of the population, not the general military population as we intended.

I guess finally something is being done, but it is clearly not what we had in mind.

I am curious, of the $9 million, how much has been spent?

Dr. Sanford. At the present time, approximately $4.5 million.

Mr. Sabo. $4.5 million has been spent?

Dr. Sanford. Yes, sir.

Mr. Sabo. And no product is out? How many video disc programs do you intend to produce?

Dr. Sanford. Mr. Sabo, let me, if I may—the funds as you appropriated them, and I think rightfully so and I agree 100 percent with the importance of educational programs that bring about behavior modification. The funds came to the DoD in August of 1988. They actually came to the university and in September of 1988 were contracted to the foundation. A steering committee was established at that time to address within DoD—this was not a university steering committee. It was a DoD steering committee to address what was there.

In January of 1989, a request for information was published in the Commerce Business Daily requesting that any materials available be provided. There were two provided; two companies responded. A series of review panels made up of rank-and-file military were given the opportunity to review those and they rated them as unsatisfactory. At that time, we proceeded within the university to both develop in-house and to contract out for the development of the programs which you, the Congress, had in mind. Additionally, it became apparent that within the services, there were not the platforms necessary to play the interactive video programs that were being prepared so that of the $4.5 million, 60 percent of that has gone into hardware to enable the material, the video discs to be utilized.

Mr. **Sabo**. Where is that hardware?

Dr. **Sanford**. It is actually being delivered at the present time to the services, to the various military services.

Mr. **Sabo**. For what purpose?

Dr. **Sanford**. For the purpose of using the interactive video as you, the Congress, directed in your report of last year, that we were to provide to the Assistant Secretary of Defense for Health Affairs, who was to provide to you no later than the first of May a status report. That was received and in that we told you that we would have on the 16th of July 1990 a product for you to be able to review.

Mr. **Sabo**. I sure didn't understand that answer.

Dr. **Sanford**. Sir, we actually at the time—if you would like, when the meeting is over, we have a product for you to review and if, in fact, you wish——

Mr. **Sabo**. Who will be served by that product?

Dr. **Sanford**. It is designed for the rank-and-file airman, soldier, sailor, and marine. There are three programs so that there is one for each of the services so that they are in the appropriate uniforms. They go through the appropriate, and I would—I, as an individual who has spent 33 years in medical education, I would say to you if anything can modify behavior through some type of video, this is capable of doing it. The programs, we have just finished shooting them, I would ask you to look for yourself. I do have available comparative ones also, but I would actually just simply ask you—we can give you a snapshot. It would take eight to ten minutes perhaps at the end of the hearing. We would be honored to have you look. If not, we will bring them to your office or ask you to come, whatever you wish.

We are proud of them, sir.

RELATIONSHIP OF JACKSON FOUNDATION TO AIDS/IVD PROJECT

Mr. **Sabo**. What is the relationship between the hospital system and Jackson Foundation in this project?

Dr. **Sanford**. The money was actually provided to the Jackson Foundation to be able to facilitate the contracting because the preparation of these video discs involve contracting for scripts, preparation for scripts, the shooting.

This particular interactive video was shot at Fort Ord, California, and was done by professionals from California.

Mr. **Sabo**. The IG noted that USUHS wrote a check to the Jackson Foundation for this project before Jackson even submitted a proposal. The check ended up being a larger amount than the actual proposal.

Is that accurate?

Dr. SANFORD. Yes, it is, sir. Actually, there was $9 million appropriated, $3 million to each of the services. The $9 million was transferred to the Office of the Assistant Secretary of Defense for Health Affairs. At the time, there were $81,000 that had been expended by 30 September, and the amount of money transferred to the Jackson Foundation was $8,919,000.

Mr. SABO. This is O&M money which normally would have lapsed on September 30, 1988. Is that the reason it was obligated so quickly?

Dr. SANFORD. Yes, sir.

Mr. SABO. So it is not spent, but it is considered obligated?

Dr. SANFORD. When it is contracted to an outside corporation, a non-profit corporation, it is, in fact, spent at that time; yes, sir.

Mr. SABO. Then it has really been switched from an O&M project to an R&D project, has it not?

Dr. SANFORD. No, sir. There is no Federal research involved. This is pure training. None of this has been devoted to research. It is entirely an educational endeavor to reach young men and young women as to hazards of AIDS in the military community. It is specifically directed at the military community. It is directed at the level, both for enlisted and officers, and it includes in the spectrum males and females of all racial and ethnic backgrounds.

Mr. SABO. Where will they be available?

Dr. SANFORD. As I said, they will be available at all of the training centers and ultimately would be available to virtually any unit within the United States or abroad.

They could be available on shipboard. In the Navy system, it goes through the CAMIS system. All Navy ships at the present time are equipped with the CAMIS system so, in fact, it could be shown on any destroyer, on any of the larger ships anywhere in the world. The video disc is virtually indestructible and can be mailed. The program which we have to show you is actually one-and-a-half sides, three video discs. One went through the entire interactive program.

Mr. SABO. I look forward to that briefing because we have spent three frustrating years trying to deal with what seemed to be a simple program.

Dr. SANFORD. I appreciate your frustrations.

All I can say is what you will see and particularly if you look at comparison of off-the-shelf, is a product which I think will accomplish what you really wished, and that was something that would impress young men and young women in such a way that they will modify their behavior or be cautious to minimize and avoid the risk of AIDS in the military.

COST COMPARISON: USUHS VERSUS SCHOLARSHIP STUDENT

Mr. SABO. I will look forward to that briefing.

Let's look at these cost figures again, which I believe come from DoD. My understanding is that students in your system start as second lieutenants; is that correct?

Dr. SANFORD. That is correct.

Mr. SABO. So they are getting their tuition paid plus they are being paid?

Dr. SANFORD. They are getting full pay and allowances. They are active duty military officers subject to the uniform code of military justice.

Mr. SABO. And their time as students counts towards the pension plan?

Dr. SANFORD. No. The four years in medical school does not count for pay or retirement purposes.

Mr. SABO. But they are paid?

Dr. SANFORD. Yes, sir.

Mr. SABO. And the scholarship students get tuition fees, this type of thing, but are not paid?

Dr. SANFORD. No, sir. The scholarship students get tuition and books. They receive a monthly stipend of about $5,000 a month, plus they serve six weeks a year active duty during which time they receive full pay and allowances as a second lieutenant during that six-week period of time that they are on active duty. I have to stand corrected in terms of the exact amount of their stipend. It has varied.

Mr. MURTHA. Would the gentleman yield? On the cost per student, is the cost of the student himself, the cost of his pay and so forth, calculated also——

Dr. SANFORD. Yes, sir. The figure that you quoted initially as the cost of $570,000 includes the pay and allowances of the students and the pay and allowances of the military faculty.

There are other calculations which include the longer—since they stay longer, they reach higher rank and, therefore, their salaries increase as they get higher rank and it includes retirement benefits so that the costs in many of these calculations are life-cycle costs, including accession all the way through retirement and calculates their retirement costs.

Mr. SABO. The cost of educating a military doctor at a university, I assume, also includes stipends that he or she receives?

Dr. SANFORD. Yes, sir.

Mr. MCDADE. You said $5,000 a month—that can't be the cost for the scholarship student monthly stipend.

Dr. SANFORD. Excuse me. I obviously did because that is a nice salary. I clearly did.

Mr. MCDADE. We are going to have a lot of applicants.

Dr. SANFORD. No, sir. That is the scholarship program, not us.

It is $500 to $600 a month, so that the individual—yes, sir. The university student receives approximately $21,000.

RECURSION FACTOR CALCULATION

Mr. MURTHA. In this calculation that we see a procurement cost for various position accession programs, I notice you have a recursion factor. What does a recursion factor mean?

Dr. SANFORD. The recursion factor is a term used by Dr. Bircher in making these calculations. It assumes retention and the higher the recursion factor, the higher the assumed retention. The recursion factor that was used in these calculations, if memory serves me correctly for the university was .464. That is based on an estimate from a previous program that the services had. He utilized Air Force data in terms of Air Force Academy graduates who were sponsored in civilian medical schools in the late sixties, the early seventies, and looked at the retention of those individuals. If I remember correctly, it assumes a 40 percent retention rate.

Mr. MURTHA. That, in fact, though tilts the cost substantially because it is based on supposition rather than on facts?

Dr. SANFORD. It is a supposition, an assumption. Yes, sir.

Mr. MURTHA. So we have to conclude that the costs are substantially higher at your university. We found, for instance, the CHAMPUS costs are about two times as much as costs in a medical facility for the services.

Why wouldn't your costs actually be less than they would at a normal university? Why would the costs at a military university be higher than the ones at a private university?

Dr. SANFORD. Sir, the calculations for the cost of our institution, the calculation, based on the entire cost of the institution, is carried on the back of 162 students per year.

On the back of 670 students and the fact that we do continuing medical education, that we do patient care, we have people involved in research, that we have all of the other activities, all of those are carried on the shoulders of these and they are compared with the scholarship which then DoD pays tuition, books and a stipend to that scholarship student.

As you actually look at the costs, and what it addresses is that we are not an overly costly institution. If you look at the average cost of civilian medical schools and divide by the number of students, you come out with an annual cost of $877,000, but that is not what you are discussing.

You are talking about the scholarship program. The other reason I should say to you, which we have—again in the "Cost of the Physician Accessions" report, which you have received, there is a table there on page 22 which, as I recall, is table 11, on page 22, which looks at average net earnings of civilian physicians.

There you see that the group at the top of neurosurgeons, orthopedic surgeons who receive average net earnings going from $122,000 to $203,000 almost 20 years, 19.6 percent of our graduates are in those specialties and will have a long period of obligation in those particular specialties which otherwise one is going to have great difficulty in attracting and if you are contracting, it would run very high in terms of contract costs.

SCHOLARSHIP PROGRAM VERSUS USUHS

Mr. MURTHA. You mean even if we used up the full 6,000 scholarships we wouldn't be able to direct those people in a private institution to the appropriate fields?

Dr. SANFORD. You do not have—at the time you access—at the time these people come into the scholarship program, they are free to go into any field that they wish.

If they go into a surgical field, the likelihood is that they will get out very quickly.

Mr. **Murtha**. How many applicants do you have a year?

Dr. **Sanford**. This past year we had 2,624 for 162 positions. The scholarship program has approximately two applicants for every one position and they are seeing a decline in number of applications.

Mr. **Murtha**. So are you saying then that the scholarship program is now not as attractive and that, therefore, the services, the need for specialty fields in the services wouldn't be met?

Dr. **Sanford**. Yes, sir, that is what I am saying.

Mr. **Murtha**. But you graduate a thousand in the scholarship program every year versus——

Dr. **Sanford**. We graduate approximately between 155 and 158.

Mr. **Murtha**. So the vast majority of your doctors still come from the scholarship program?

Dr. **Sanford**. Yes, sir.

Mr. **Murtha**. GAO in 1979 said it wasn't a good idea. I think they said it a couple of years later. They said it would cost more. You admitted it costs more even with the recursion cost factor you use in your analysis.

Dr. **Sanford**. Yes, sir.

JUSTIFICATION FOR USUHS PROGRAM

Mr. **Murtha**. Your justification is that you have specialty fields that would not be filled if it were not for this university?

Dr. **Sanford**. We have specialty fields—I can't say that they would not be filled. I would say that we have a much greater likelihood of filling them because of the university. I would also say, first of all, we recruit an individual who is motivated to serve in the military at the time they come in. They have the mind set that they are going to serve and they function with the line and they understand the line and the line finds that they like to have our graduates. We know that they are going to be retained for longer periods of time not only because of their obligation, but because of their original selection, they were selected because they wanted to stay. They are accultured into the military programs.

I have used the analogy in the past that if you open a Sears catalog, you can turn to a page and find a battery with a 12-month warranty on it for $24, one with a 60-month warranty for perhaps $48. One clearly costs twice the other, but one is more dependable, one is going to be with you for a longer period of time. That is the argument I would make.

COST EFFECTIVENESS OF USUHS

Mr. **Murtha**. With a declining defense budget and with a substantial reduction of numbers of people in the armed forces, is this cost effective? Cost effectiveness is going to be reduced substantially if you have less numbers and I assume the medical service will be reduced during this build-down, and I will predict that we will be close to 100,000 to 150,000 troops reduced in the active military.

Doesn't it just mean it makes it that much more difficult to justify this institution?

Dr. **Sanford**. No, sir. I would argue it makes it easier to justify. The base for this argument is two-fold. With the drawdown in troop strength, there is not a concurrent drawdown in eligible beneficiaries. There are approximately nine million beneficiaries eligible for care within the DoD system. Decline in troop strength will decrease that very little so that the services anticipate that medical needs will remain very near the current level, if not higher.

As you pointed out, it costs you almost twice as much to provide medical care in the CHAMPUS system than it does in the direct care system. By having individuals willing to remain on active duty, as our graduates are going to be, they will make up a higher proportion of the active duty strength and, therefore, be providing medical care at a $1.00 rather than $1.57, which it costs in CHAMPUS.

Mr. **Murtha**. Mr. Sabo?

HIGHER COST OF USUHS PROGRAM

Mr. **Sabo**. As I look at these numbers, even when it includes your higher recursion factor—which I understand is based on an assumption that your graduates may stay longer than those in the scholarship program—it still costs about 50 percent more to educate a doctor under your program than in the scholarship program.

Am I not accurate in that?

Dr. **Sanford**. You are accurate. The figure is 53 percent more.

Mr. **Sabo**. And that assumes a very substantial difference in people staying on between your program and the others, which may or may not be accurate. I am just curious also about your assumption that somehow the specialties will more likely come through your program than others. Isn't the fundamental training for the specialties post-medical school?

Dr. **Sanford**. Yes, sir, but it turns out when you select people for medical school, there are certain types of people who want to become surgeons, others who want to become pediatricians, and other types of people—you put them in an environment and we end up with 20 percent who want to be in these surgical specialties or the high-paying specialties.

Once they make that decision, it is usually made because they enjoy it while they are in medical school, the individual who is trained as a neurosurgeon and has some debts is going to get out as soon as they can.

If they come through the scholarship program, they can get out after four years. In our program, that neurosurgeon is going to have to stay even if he wants to get out a minimum of seven years because he has seven years of obligation and you have somebody who is being drawn by $250,000, $300,000 a year salary on the outside who has to stay at least three years longer and we feel he will stay longer than that.

Mr. **Sabo**. In the scholarship program, the students have a two-year reserve obligation while yours do not?

Dr. **Sanford**. Ours do not.

INSPECTOR GENERAL AUDIT REPORT

Mr. **Sabo**. We have the IG report which raises lots of questions. What is currently happening with that report within DoD? Who are you responding to at this point in terms of solving problems identified in the report. I assume something is happening.

Dr. **Sanford**. Yes, sir. I can assure you. Actually, if one looks at the entire report and dissects it, you find that the issues fall primarily into three broad areas. The first broad area deals with the interface between the university and the Jackson Foundation. That we have briefly discussed. The agreements between the university and the Jackson Foundation are being greatly tightened. As I pointed out earlier, there are a number of additional personnel being brought on and that separation is becoming much clearer.

Secretary Cheney, in a letter of May 14, directed that a series of broad actions be taken by various Assistant Secretaries within the Department in collaboration with the university, the overall coordination by Dr. Mendez, Assistant Secretary of Defense for Health Affairs. In response to that, the Board of Regents has appointed two subcommittees which are actively working to assure issues of oversight, planning, and those types of areas.

The second area that the DoD IG report addressed was the question of cost, but their recommendation was that you look at the issue of retention when there were a significant number of graduates whom you could assess, which is probably five years from now. There were also a series of internal management problems that they brought to our attention. I remind you that that survey was actually done in the summer of 1989. Virtually all of the recommendations that were made, of the observations they made, have been corrected at this time. We have taken those recommendations very seriously and we have undertaken significant reorganization with the university to meet those. We are very sensitive to those criticisms. I would point out that they did not find any fault, had nothing negative to say about the quality of the educational program and the quality of the students, the quality of what we were doing.

Mr. **Sabo**. Thank you.

Mr. **Murtha**. Mr. McDade.

COST OF SCHOLARSHIP VERSUS UNIVERSITY STUDENT

Mr. **McDade**. Dr. Sanford, we calculate that based on the costs of your program over the cost of the scholarship program, there is a premium of $77 million per class that you graduate. That is going to be very difficult for us to justify as we look at this declining defense budget. Do you agree the premium is $77 million?

Dr. **Sanford**. I am not certain how that is derived. I have difficulty since I have not reviewed the calculations to be able to——

Mr. **McDade**. What does it cost your institution? Is it half a million dollars per student roughly?

Dr. **Sanford**. I am willing to take the cost provided to you which is the break-even cost, which is—it costs $130,000 per year per graduate.

Mr. **McDade**. You think that is the cost per graduate at your institution?

Dr. **Sanford**. I will accept that figure; Yes, sir.

Mr. **McDade**. You don't accept the DoD figure?

Dr. **Sanford**. I am quoting the DoD figure.

Mr. **McDade**. I don't think you are. The DoD figure is much higher.

Dr. **Sanford**. The GAO figure was lower, but in table 12 of the cost of figures accession, that is the figure there, sir.

Mr. **McDade**. If you look at the costs to your institution, a class of 162 people costs you $77 million; that is what it costs the taxpayers.

Dr. **Sanford**. Yes, sir.

Mr. **McDade**. If you look at a class of a thousand in the scholarship program, that cost is $58.7 million.

Dr. **Sanford**. I will accept the figure. I have not seen that figure.

Mr. **McDade**. You better look at it. That is $77 million per class at your university.

Dr. **Sanford**. Per class. I would say that you need to then amortize that cost over a period of time that people are going to stay or not stay.

Mr. **McDade**. The difference is seven years versus four years?

Dr. **Sanford**. Seven is what the law requires.

Mr. **McDade**. Versus four of what the law requires?

Dr. **Sanford**. Yes, sir.

HISTORY OF USUHS GRADUATE RETENTION

Mr. **McDade**. Don't you know how many of your students stay beyond seven years?

Dr. **Sanford**. I know at the present time; yes, sir.

Mr. **McDade**. What do you mean?

Dr. **Sanford**. Recall that our first class graduated in 1980. They had three years of training and then seven years of obligated service, so that if anybody had three years of training, the first individuals who are eligible to get out can get out this summer.

We actually have 26 individuals who are eligible to leave. Of that 26, 23 have extended, have stayed on, past the point that they were eligible to get out and of those three that got out, 2 actually got out voluntarily and the third retired after 20 years of active duty.

The other point I would make is that 26 percent, 26.5 percent of our students bring in an additional five-year obligation so that in addition to the seven-year obligation, they bring a five-year obligation, which is additive. It cannot be served concurrently. So we have 26 percent of our students we know that have a minimum of a 12-year obligation.

Mr. **Murtha**. Scholarships could have that obligation if he were ROTC?

Dr. **Sanford**. Yes. But there are few of them in the scholarship program; yes, sir.

Mr. **Murtha**. Mr. Miller?

Mr. **Miller**. No additional questions.

Mr. **Murtha**. Mr. Sabo?

Mr. **Sabo**. No questions.

Thank you, Mr. Chairman.

Mr. **Murtha**. Thank you very much, Dr. Sanford.

Dr. SANFORD. Mr. Chairman, if you or any of the Members would like, we can, within approximately four minutes to five minutes, be able to set up that video in the room if any Member would like to see it.

Mr. SABO. I will schedule a time to see it.

Dr. SANFORD. All right, sir.

Mr. MURTHA. Thank you. We have other questions for the record. The committee now adjourns subject to the call of the Chair.

[CLERK'S NOTE.—Questions submitted by Mr. Sabo and the answers thereto follow:]

AIDS/INTERACTIVE VIDEODISC PROJECT

Question. In 1987, during action on the fiscal year 1988 Defense Appropriations bill, Congress added $9 million in the operation and maintenance account for an AIDS interactive videodisc (IVD) program. I want to emphasize that the money was added to the O&M account, not to R&D.

Since that time, not a single serviceman or woman has been educated about the danger of AIDS as a result of our adding those funds. This is not because we were unclear about what we wanted. The fiscal year 1988, fiscal year 1989, and fiscal year 1990 Defense Appropriations bills all included language on this. Last year we directed USUHS to procure an off-the-shelf IVD product within six months. USUHS failed to do so.

I understand that USUHS has now produced its own AIDS/IVD program, which is scheduled for distribution to the services later this fall. Even this new program is not directed at the general serviceman or women, but at a small segment of the population.

I suppose I should be encouraged that something is finally being done, even if it has taken three years, and even if it does not serve the entire military population, and even if the development program has been carried out in direct violation of clearly-expressed Congressional intent.

However, I do have a series of questions on the program.

First, how much of the $9 million has been spent, and how? How many videodisc programs do you intend to produce? When can we expect that the last program will be completed and delivered?

Answer. As of August 1, 1990, $4,073,165.22 of the $8,919,000 awarded to the Henry M. Jackson Foundation for the Advancement of Military Medicine (HMJF) for the procurement of Interactive Videodisc (IVD) for HIV/AIDS training materials has been obligated. Sixty-one percent ($2,517,698.20) has been used to purchase 366 IVD display platforms for use by the Services. The remainder ($1,555,467.02) has been spent in the direct development of IVD programs or on subcontracts for program development or services.

Four basic educational programs and four knowledge assessment programs for a total of eight programs (14 videodisc sides) will be produced. Two hundred copies of each program will begin to be provided to each service during the week of 3 September 1990. All eight programs will be completed and delivered to the services before 31 August 1992. A short synopsis of each program, budgeted cost and projected delivery date follows:

EDUCATIONAL PROGRAMS

HIV/AIDS Total Force Training: Body Armor: Risks; Protection; and Buddy System.

Body Armor is a Total Force Training IVD program directed at every sexually active service member. This program is composed of three modules—Risks, Protection, and Buddy System. Each module is contained on one side of a 30 minute videodisc. Body Armor is designed to heighten the AIDS awareness of sexually active men and women to the extent that they will modify their sexual behavior to take those precautions which will minimize or eliminate their risk of being infected with the AIDS Virus. Total production costs were: $800,000 ($267,000 per side). Distribution of this program will begin on 4 September 1990.

HIV/AIDS TOTAL FORCE TRAINING: SUPERVISORS

This program, a single-sided 30 minute videodisc, is being written and produced in the private sector under a subcontract from the HMJF, with oversight and guidance from the DoD Oversight Committee and HMJF. This program will provide training for military and civilian supervisors dealing with AIDS/HIV issues in the military work place. Total production costs are projected to be $310,000. Delivery is projected for the first quarter of 1991.

HIV/AIDS TOTAL FORCE TRAINING: FACTS, MYTHS AND PREVENTION

This program will be on four sides of two videodiscs (30 minutes of video/side). Each disc may be used independently of, or in combination with, the other disc. Facts and myths of HIV transmission, risky behavior, perinatal transmission and methods of prevention—including abstinence—will be presented. Total production costs are projected to be $1,400,000 ($350,000 per side). Delivery is projected for the third quarter of 1991.

HIV/AIDS TOTAL FORCE TRAINING: MEDICAL DEPARTMENT

This program is to be a two-sided videodisc (30 minutes per side). The proper preventive measures and precautions to be taken when treating HIV/AIDS patients in military health care facilities or when dealing with body fluids or blood products will be presented. Additionally, instruction will be given in the treatment and medical management of patients injured by natural disaster or by acts of war, whose HIV status is unknown. Production costs are projected to be $400,000 ($200,000 per side). Delivery is projected for the fourth quarter of 1991.

KNOWLEDGE ASSESSMENT PROGRAMS

To comply with the GAO recomendation "[that] the Secretary of Defense evaluate the effectiveness of the HIV/AIDS education efforts" contained in their February 1990 report "Effects of AIDS in the Military", a knowledge assessment IVD program will be developed to supplement each of the primary educational programs. Survival skills and concepts taught in the primary educational programs will be augmented, evaluated, reinforced and maintained using a game show format similar to "Jeopardy". This format has proved very successful in the Navy Medical Department's Medi-Quiz programs used in Hospital Corps A school and various C schools. Each program will be on one side of a 30 minute videodisc and will cost approximately $125,000 per program. The programs to be produced are:

HIV/AIDS "MEDIQUIZ" FOR ALL MILITARY PERSONNEL

This program will reinforce and present key instructional points contained in each module of the HIV/AIDS Total Force Training: Body Armor program. Positive feedback for correct and incorrect answers and knowledge assessment will be integral features. Delivery is projected for the first quarter of 1991.

HIV/AIDS "MEDIQUIZ" FOR SUPERVISORS

Management and group meeting concepts presented in HIV/AIDS Total Force Training: Supervisors will be supplemented and reinforced. Positive feedback for correct and incorrect answers and knowledge assessment will be integral features. Delivery is projected for the second quarter of 1991.

HIV/AIDS "MEDIQUIZ" FOR ENLISTED PERSONNEL

This program will reinforce and present key instructional points contained in HIV/AIDS Total Force Training: Body Armor and HIV/AIDS Total Force Training: Facts, Myths and Prevention programs. It will be presented in the "languuage" of the service member in his/her late teens and early twenties. Delivery is projected for the fourth quarter of 1991.

HIV/AIDS MEDIQUIZ FOR MILITARY MEDICAL PERSONNEL

Skills taught in HIV/AIDS Total Force Training: Medical Department will be refreshed and maintained by this program. Positive feedback for correct and incorrect answers and knowledge assessment will be integral features. Delivery is projected for the first quarter of 1992.

Project completion will be on or before 30 September 1992. All IVD programs will be completed and delivered to the services by August 1992. Revision and updating of released programs (educational and knowledge assessment) will be provided as needed throughout the project.

Question. How much will each IVD program cost? What is the average cost for producing the videos? What is the average cost for producing them on a contract basis vs. internal-USUHS development? How do these costs compare to the costs of other videos you have produced?

Answer. Many variables exist in the cost of production and time for development and delivery of this type of IVD program (Level III). Development and distribution costs depend upon the number of videodisc sides used in the program and the level of program complexity. Simple programs which may be filmed on a sound stage cost about $115,000 per side. Complex programs which contain action scenes in multiple locations may cost as much as $400,000 per side. Production costs of the 14 IVD videodiscs for HIV/AIDS education of military personnel under the contract with

HMJF will average $260,000 per side with a range of $125,000 to $350,000 per side.

HMJF sent Requests for Proposal to private-sector contractors for a proposed program design and cost for development of a single-sided Level III IVD program for training Military Supervisors and Health Care Workers. The average cost of the five responses received for developing HIV/AIDS Total Force Training: Supervisors was $403,395 with a range of $224,680 to $994,838. The three responses received for developing a single-sided HIV/AIDS Total Force Training: Medical Department had an average cost of $210,070 with a range of $186,276 to $253,116. These program prices do not include management team or distribution costs. Approximately $50,000 needs to be added to the RFP prices to cover management oversight and distribution costs. Quoted development time for both products was 15 to 18 months. Time required for management review of the principal program development documents—treatment, design and script—will add one to two months to the development time. Total development time for these products will be 16 to 20 months.

Projecting costs to the end of the project there is a potential cost savings to the Government of $1.1 million (twelve percent). IVD equipment is projected to be $4.1 million (forty-six percent) of the total and program development and delivery to be $3.7 million (forty-two percent) of the total. The precise amount of the excess funding will depend on the amount of unanticipated costs. Excess funds may either be returned to the treasury, used to procure additional IVD platforms for the Services, used for developing an additional IVD program, or used to maintain and update issued programs.

USUHS faculty and staff from Naval Health Sciences Educational Training Command have been at the forefront of IVD educational programs since 1985. Development of these programs was funded by the Navy and Marine Corps except "Gross Anatomy" which was funded by USUHS. These programs include:

COMBAT TRAUMA LIFE SUPPORT FOR MEDICAL OFFICERS

This single-sided disc was the first Level III IVD program developed in the United States and currently serves as the Level III IVD standard. It presents four trauma cases in a combat field hospital setting. Advanced Trauma Life Support training is reinforced by a "hands-on" approach to patient management. The program was developed in 34 months at a total cost of $406,000.

REGIMENTAL SURGEON

A two-sided disc Level III IVD program presents a realistic combat field medicine setting to the newly assigned medical officer. The person using the program is required to make clinical decisions and formulate recommendations to Line Officers which could have a significant effect on the combat readiness of the entire regiment. The scenario for this program is a Persian Gulf country. The program was developed in 46 months at a total cost of $477,066.

MEDIQUIZ

MediQuiz is the first of three game-show type programs developed to provide a non-threatening environment for introducing interactive videodisc teaching materials to persons requiring remediation for academic deficiencies or for those persons desiring to reinforce the basic tenants of health care delivery taught in Navy Hospital Corps A School. The program was developed in 17 months at a total cost of $140,000.

MEDIQUIZ: LAB TECH

Mediquiz: Lab Tech was developed to supplement and reinforce training in the Navy Laboratory Technician C school. The program was developed in 15 months at a total cost of $108,500.

MEDIQUIZ: OR TECHNICIAN

Mediquiz: OR Technician was developed to supplement and reinforce training in the Navy Operating Room Technician C school. The program was developed in 15 months at a total cost of $108,500.

MEDIQUIZ: GROSS ANATOMY

The success and wide acceptance of the first three MediQuiz programs lead to the development of a MediQuiz program to reinforce concepts learned in the first year of Medical School in the Gross Anatomy course. The program was developed in nine months at a total cost of approximately $60,000.

The higher initial development cost for the first MediQuiz program was for the time and materials required to write the MediQuiz "engine", and filming opening and closing scenes. Subsequent MediQuiz programs were less expensive to produce since much of the "canned" material developed for the first program could be used.

JACKSON FOUNDATION

Question. Could you please explain the role of the Jackson Foundation in this effort?

Answer. Pursuant to the special relationship created by Congress under 10 U.S.C. § 178, HMJF was awarded a contract on September 30, 1988, to manage, design, write, test and evaluate fully functional interactive videodisc (IVD) programs for the education and training of Department of Defense (DoD) personnel in the prevention of HIV infection and AIDS, and to provide user IVD equipment.

Question. The DoD Inspector General noted in its February report that USUHS wrote a check to the Jackson Foundation for this project before Jackson submitted a proposal. The check was for $8,919,000, but the proposal was for only $8,797,133. According to the IG, this means that "there was no way the contracting office could perform a technical review, conduct a cost analysis or audit, or negotiate a price for the benefit of the government." Could you comment on this? Why was USUHS in such a hurry to write the check? Who wrote the check for USUHS and who accepted it for the Jackson Foundation?

Answer. No check was written to HMJF. A cost reimbursable, no-fee, no-profit contract not to exceed $8,919,000 was issued to HMJF on September 30, 1988. Had the contract not been issued on that date, the funds would have expired.

A proposal to provide for military personnel interactive video training programs to support DoD policies regarding the prevention, diagnosis, and treatment of HIV infection and AIDS was submitted on August 3, 1988 and approved before the contract was issued to HMJF. The $121,867 ($8,919,000 −$8,797,133) difference between the proposed budget and contract award were funds to provide support for administrative costs in putting the contract in place. These anticipated costs were never realized. To meet the Congressional directive, a contract was let on September 30, 1988 to the HMJF before the funds expired at the end of the fiscal year. As work is completed on the contract, HMJF invoices USUHS for actual expenditures. The Contracting Officer's Representative certifies that all services/material listed on the invoice have been performed and/or received prior to payment of the invoice.

IMPROPER USE OF O&M FUNDS

Question. As I understand it, some of the videodisc programs will be done in-house at USUHS with partial outside contracting. So even though the money has been sent to the Jackson Foundation, the work is being done at USUHS and the funds are being spent at USUHS. How can this be done with O&M funds, when the authority for those funds expired on September 30, 1988?

Answer. The videodisc programs are being developed under the contract between USUHS and HMJF by the HMJF with supervision and direction from a DoD Oversight Committee. The contract with the HMJF was issued on September 30, 1988.

Question. Can you tell me whether USUHS has diverted any other funds from the O&M account to the Jackson Foundation? If so, please provide the Committee with a detailed account of each instance.

Answer. No O&M funds have been "diverted" from USUHS to the Jackson Foundation. All transfer of funds to the Jackson Foundation have only been made pursuant to contract, grant, or cooperative agreement.

Question. Please provide the Committee with the legal basis for spending O&M funds for this product development program.

Answer. The Congressional directive for this money was to provide a "self-guided, interactive video-disc program to facilitate AIDS education among military personnel. The distribution of this educational tool should help disseminate AIDS educational material and curtail the spread of this disease." The money provided by Congress is being used in compliance with that directive.

Question. I understand that some of the $9 million has been used for equipment purchases. Although DoD regulations allow equipment purchase when individual "systems" cost less than $15,000—which is the case here—this entire purchase could reach $4.5 million, which is clearly in the range of many current procurement programs. I do not believe that the regulations allowing relatively minor equipment purchases are designed to allow the use of O&M

money for multi-million dollor procurement programs. Can you tell us who authorized this purchase? Is it your belief that this expenditure is a proper use of O&M money?

Answer. The expenditures for hardware were a proper use of O&M funds to meet the Congressional intent for this program and were not used as incremental funding for procurement of Capital Equipment. Army, Navy, and Air Force representataives on the DoD Oversight Committee reviewed IVD platform availability for use of the AIDS/HIV IVD programs. There were not sufficient quantities of these platforms available to provide AIDS instruction in an IVD format to service men and women for viewing in a semi-private setting. Failure to procure the platforms would have precluded the use of any AIDS IVD program. To meet the Congressional intent, it was necessary to purchase a minimum of 366 IVD platforms. Service requirements for IVD hardward exceed this number by nearly 10 times.

Question. I am having a difficult time with the way that this money has been spent. This Committee handles reprogramming requests all the time. I could have understood a DOD request to reprogram this money from O&M to R&D and procurement if the Department had determined it could not obligate the funds consistent with Congressional intent within fiscal year 1988. But I do not agree with the Department's decision to engage in these complicated financial transactions. In another context, this could be called a money laundering operation. And reprogramming is not that difficult. Why did the Department not seek reprogramming?

Answer. Reprogramming of the appropriated funding for this program was not required. Congress was very clear on how this money was to be spent and we were able to spend the money as intended. A contract was issued to Henry M. Jackson Foundation, a non-profit corporation, on September 30, 1988. Once so contracted, O&M funds are spent as of the contract date. No Federal research is involved in procuring or developing these programs. This is entirely an educational endeavor specifically directed at the military community. These programs are directed toward the HIV/AIDS educational needs of both enlisted and officers, and males and females of all racial and ethnic backgrounds.

USUHS BUDGET

Question. USUHS has requested $43 million in O&M, $2.3 million in R&D, and $890,000 for procurement. Of the O&M request, $4 million is for a number of small, existing medical training programs which the University is taking over. An additional $30–$35 million is spent directly by the services for pay and allowances of officers and enlisted personnel serving at the University. Can you provide additional information about the R&D request? What projects will you pursue with this money? Where will the work be done? Will the Jackson Foundation be involved?

Answer. The funds for R&D are used to support militarily relevant research as defined by the HASC. Such research is conducted by the faculty members of the various departments within the School of Medicine. Oversight coordination and avoidance of duplication is provided by the Armed Services Biomedical Research

Evaluation and Management Committee (ASBREM) under DoD USDR&E. There are currently 68 research projects that are supported with these funds. Twenty-three of these projects will be terminated or subject to competitive review at the end of this fiscal year. Forty-two proposals have been submitted as new projects or competitive renewals for FY91. All projects are reviewed and prioritized for scientific merit by a review committee composed of faculty members from the Univeristy. Approximately 75–80% of the submitted proposals are funded after the review process. These projects support basic research in a number of militarily relevant areas. These include studies on infectious diseases and infectious agents, neural injury, immune function, traumatic injury, surgical techniques and environmental hazards. Projects are conducted at the USUHS or the associated teaching hospitals. One project is a collaborative effort with the Armed Forces Radiobiological Research Institute and is conducted in its facilities. Generally, the Jackson Foundation is not involved. However, on occasion an employee of the Jackson Foundation may be involved in the research project and compensation for the support given to these research projects can be provided.

Question. As you know, we are facing a very difficult budget year. Can you tell me where you would make the cuts if the Department were forced to make a 25 percent reduction in your budget as a result of Gramm-Rudman sequestration?

Answer. A 25 percent reduction in the University's budget would result in such major reductions of staff and faculty that accreditation could not be maintained. While reductions would be applied first to such things as graduate programs, equipment, and research, the University could not continue to operate a medical school at that level of funding.

USUHS LONG-TERM PLANS

Question. I understand that military construction funds appropriated for USUHS have been frozen as part of the overall freeze on military construction projects. What will be built with this money?

Answer. The FY 1990 military construction funds appropriated for USUHS are for a project titled "Alterations Ground Floor, Building 70." This will provide an addition of 3,750 square feet within existing walls of the University, underneath an existing landscaped area. This alteration project provides urgently required space for the University's Laser Biophysics Center to continue research and teaching into the medical applications or advanced laser technology. These funds will not be spent until the freeze is lifted.

Question. Is the University planning any major construction projects for the next five years? If so, please provide us with any details you may have.

Answer. The University has funds programed for two construction projects, one in FY 1991 for $800 thousand and one in FY 1992 for $600 thousand. The military construction project that is in the President's FY 1991 Budget is titled "Complete Construction of Animal Rooms." This project completes the conversion of existing storage space for eleven animal awards with special construction features to permit biological research in biohazard substances. It provides additional ventilation, floor drains, sinks, lighting, ceiling and masonry walls, in addition to controlled entrance and exit sanitation and sterilization procedures. These features are required for conducting research in infectious disease and other biohazard substances. The FY 1992 project is titled "Animal Facility Alterations." This project increases the ventilation, adds exhaust air hoods, and exhaust air capacity in the cage wash room. It will provide additional air supply, an exhaust air system to the exterior, and a needed additional emergency power generator for the animal facility.

Question. Beyond the issue of military construction, can you tell us if the University is planning any major new programs—in particular programs which would result in increased budget requests? Please provide your projected budgets for the next five years.

Answer. The University is not planning any major new programs. The University's currently approved funding level as reflected in the FY 1991 budget submission is as follows:

[In thousands of dollars]

	fiscal year—			
	1991	1992	1993	1994
O&M	$42,809	$46,600	$51,066	$54,759
Procurement	809	979	1,100	1,068
RDT&E	2,342	2,524	2,739	2,966
Military construction	800	600		
Total	46,841	50,703	54,905	58,793

The USUHS funding levels in the FY 1992–97 program have been significantly reduced; however, the actual levels will not be available until the FY 1992 President's Budget is finalized.

Question. What is the status of the proposal that the government create "Uniformed Services College of Nursing" at USUHS?

Answer. In 1989, the Senate Appropriations Committee directed ". . . the Department [of defense] to develop a feasibility/implementation study for the establishment of such a federal nursing program. . . ." A task force has been at work addressing the issues since October 1989. Progress reports have been submitted regularly to the USUHS Board of Regents. GAO was also asked to address the issue. They have declined on the basis that the data available for review are still not final. No funding has been approved for this project. Costs to date have come from the USUHS O&M appropriation.

[CLERK'S NOTE.—End of questions submitted by Mr. Sabo. Questions submitted for the record and the answers thereto follow:]

UNIVERSITY PROCUREMENT COSTS

Question. What effect would it have on the University if no procurement funding was provided in fiscal year 1991 while you try to get your equipment accountability in order?

Answer. In the absence of the requested $890 thousand, the University would continue to operate but would be unable to maintain optimally effective equipment required for teaching and research. The University's equipment accountability is in order and the requested money allows for a modest 2.5 percent annual replacement of an inventory of $38.5 million. Given the rapid advances in biotechnology development and the need for replacement of worn out equipment, the replacement schedule is appropriate.

ADMISSION STANDARDS

Question. How difficult is it to get admitted to your University?

Answer. There were 16 applicants for each position for the 1990 First-Year Class. Although grades and Medical College admissions Test (MCAT) scores are very important, the Admissions Committee evaluates a number of other factors to include military motivation and leadership, medically-related work, volunteer work, written statements, activities, clubs, letters of Recommendation, and interviews which are conducted by senior medical corps interviewers. We put great emphasis on motiviation toward a career in military medicine.

Question. Have the number of requests for admission to the University decreased in recent years? If yes, why do you think this has happened?

Answer. For the 1984 First-Year Class, we had 3,965 applications. Applications were on a decline until the 1988 First-Year class with 1,587 individuals received that year. For the 1989 First-Year Class, 1,863 applciations were received, and for the 1990 First-Year Class, 2,624 were received. Nationally, applications have been declining since 1974. At that time, 42,621 individuals applied as opposed to 26,915 last year. Medicine in general is not seen as attractive a career as it used to be; many years are required to obtain a medical specialty, third-party pay (civilian medicine), legal problems, malpractice insurance, long hours, lack of family life. These factors have made the practice of medicine less appealing and such an attitude carries over into application to USUHS. Also, there are those individuals who do not want to combine the military and medicine.

Question. How do your admissions standards compare to other local medical schools such as George Washington or Georgetown?

Answer. For the 1990 First-Year Class the mean grade point averages (GPA) and mean Medical college admissions Test (MCAT) scores are as follows:

	GPA	MCAT
George Washington	3.3	9.1
Georgetown	3.3	9.3
Nationwide	3.08	9.2
USUHS	3.45	9.2

The course prerequisites for the other schools are similar to USUHS although they do not require baccalaureate degrees. As noted above, however, we also place a strong emphasis in the selection process on those motivated toward a career as a medical officer.

Question. Have you already accepted your 1991 class? When do you normally send out your formal offers of acceptance?

Answer. Applications are now being received for the 1991 First-Year Class. Interviews will begin on October 18, 1990 and letters of acceptance will be issued starting November 15, 1990.

RESEARCH WORK

Question. The DoD Inspector General report found the University was doing research with foreign scientists and doctors without proper DoD approval. For example, the University was involved with research at facilities located at Belize, Pakistan, People's Republic of China, and Zambia. In Zambia, your University has been involved in acquired immune deficiency syndrome (AIDS) research involving human, subjects, including children.

Is your University involved in all this research at various sights throughout the world? What is the purpose of this research? Is it part of your School's Charter?

Answer. Yes, we are involved in research at these sites, except for the People's Republic of China, where the collaborative efforts were discontinued in May 1989. The purposes of these agreements are to provide both educational and research opportunities. The locations provide opportunities for USUHS students and faculty to maintain and develop skills and knowledge of the medical problems we would face in the event of deployment. The locations were selected as being representative of broad areas where a knowledge of the disease threats would be in the best U.S. interest. For example, Pakistan is representative of Southwest Asia (Middle East). The research involves the prevention and treatment of diseases such as malaria; non-A, non-B water-borne hepatitis; hemorrhagic fevers of the "Andromeda Strain" type; and other fever illness. Public Law 92-426 [10 U.S.C. § 2113 (h), (j)] authorizes the Board to establish post-doctoral, post-graduate, and technological institutes and shall establish continuing medical education for military members of the health professions. The DoD Directive on the University implements these authorities.

Question. Do you have official DoD permission to be involved in this research?

Answer. Yes. International agreements are in place. These have been reviewed by ASD(ISA), General Counsel, and ASD(HA). Further, many are funded by the U.S. Army Medical Research and Development Command and are subject to their review as well.

Question. Is this research duplicating efforts already being undertaken by the Army, Navy, or Air Force? For example, the Army is doing AIDS research in Brazil and making some progress towards finding a vaccine according to the Assistant Secretary of Defense for Health Affairs. Do you coordinate your University's research with the Services?

Answer. The efforts are not duplicative. The USUHS research program is reviewed regularly by the ASBREM—Armed Services Biomedial Research Evaluation and Management Committee, and the efforts are coordinated with the Services. The vaccine work on AIDS is being done collaboratively at the Henry M. Jackson Foundation, with investigations from the Foundation, the three Services, and USUHS.

UNIVERSITY OPERATING COSTS

Question. You stated that your entire compensation from the University is $122,000 and that you receive no compensation from the Jackson Foundation. Is the entire $122,000 paid to you in the form of salary? Do you receive any other compensation from the University such as a car and driver, housing, personnel expense account, entertainment expense account, or other compensation?

Answer. Yes, the $122,000 is salary and I receive no other form of compensation or allowances. Specifically, I do not receive a car and driver, housing, personal expense account, entertainment expense account, or other compensation.

Question. Why do you say that the Jackson Foundation research program only has $14 million? Please explain the difference between your figure and the $19.5 million that the staff was told the Foundation had for research programs.

Answer. The $19.5 million figure was research money projected for calendar year 1989 at the beginning of 1989. The $14 million is the actual figure from the Peat Marwick audit for fiscal year 1989 which ended September 30, 1989.

[CLERK'S NOTE.—End of questions submitted for the record.]

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